

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 351. - Vol. XII.]

LONDON : SATURDAY, MAY 14, 1842.

[PRICE 6D.

**BRYNDU COAL AND IRON WORKS, GLAMORGAN-SHIRE.** — TO BE SOLD, BY AUCTION, under distress for rent, on Monday, the 10th of May, and following days, by Mr. M. WHITTINGTON, subject to such conditions of sale as shall be then produced, the MATERIAL of the said colliery and iron-works, situated near Pyle, Glamorganshire (adjoining the Duffryn Liverpool Railway, with which there is a communication); and the STOCK of CAEGLAWR AND BRYNDU FARMS, consisting of several steam-engines, with boilers, &c., water-wheels, above 150 oval trams, several thousand tons of coke, iron ore, sand and coal, and of cast and wrought-iron, and about twenty valuable draught horses, farming implements, &c.—Sale to take place each day of租.

Catalogues and further information may be had of Mr. William Llewellyn, Groesfaid, near Neath, or of the auctioneer, post-office, Neath.

**TWO ENGINES, AND OTHER VALUABLE MINING MATERIAL.** — TO BE SOLD, BY AUCTION, on Wednesday, the 16th inst., at Ten o'clock in the forenoon, at CARELL CONSOL MINES, in the parish of Crowsan, in the county of Cornwall, a STEAM-ENGINE of 70-inch cylinder, with cast-iron beam, condensing work, steam pipes, capstan, shears, balance-bob, and large boiler.

A 24-inch (double) STEAM WHIM AND STAMPING ENGINE, with cast-iron beam, fly-wheel, wheel cage, condensing work, and two boilers, with stamping axes of sixteen-hundred each; one 11-inch capstan rope, 200 fathoms of steam-whim chain, 40 fathoms of horse-whim chains, 7 fathoms of Menai rods, 14, 15, and 11-inch, steam-whim hobbles, and horse-whim hobbles.

50 fathoms 14-inch pump  
30 " 10-inch " with working barrels, door-pieces, windshores, buckets,  
30 " 7-inch " brackets, and prongs to match.  
30 " 6-inch "

30 pincer poles, 13, 17, 7, and 6-inch, with cases, stuffing-boxes, and glands to match; 4 knee and top-door pieces, 18, 15, 10, and 6-inch, with clacks and check valves to match; forged iron, strapping, plates of various sizes, with caps and cheeks; 7 horse-whims, with tackle, 7-4 foot whim shovels, 20-2 foot whim jullions, 4 steam-whim shaft tackles, and 17 pulley stands, 2 pair of double, triple, and single blocks, beams and iron weights, beam and scales, 3 smither bellows, 45, 50, and 55 inches, 2 scissars, 2 vices, screwing stock and screwing tools, smithies, and the miners' tools, staples, glands, and yokes, rod and chain bolts, transom iron and tram wagons, blisters and gear steel, spike nails, candle and tallow chests, cisterns, 2 winches 4 and 5 feet, crab winch, large hand-screw and jack, 24-gallon cast-iron oil-sale, miners' dry and quadrant, brass bell and stand, brass and iron sleeves, iron shears, washing tubs, 25 stamps' hives, 24 stamps' frames, 12 bobbins, the hatches, air-pipes, air-machine, pick and shovel hilt, carpenters' benches, several pieces of oak, old timber of various sizes; new and old iron; all the account-house furniture, &c., &c.

The above may be viewed any day previous to the 16th inst., on applying to the agents at the mine. The sale will commence precisely at Ten o'clock in the forenoon, and the whole of the materials will be sold without the least reserve to the owners.—Any party having a claim on the mine must send in the particulars of the same before the 16th inst., to Mr. William Burgess, Trengore, Camborne.

Dated Camborne Mines, May 3.

**TO RAILWAY COMPANIES, ENGINEERS, CONTRACTORS, AND OTHERS.** — Mr. E. K. DAVIS has been favoured with instructions to SELL, BY AUCTION, at Garraway's Coffee House, Change-alley, Cornhill, on Friday, the 10th May, at Twelve o'clock noon, subject to such conditions as shall then be produced, CYNLWYD FARM, situated in the Rhondda Fach Valley, and in the parish of Ystradymddyng, in this county, comprising a farm-house and buildings, and upwards of 160 acres of freehold land, of which nearly fifty are wood-land, principally oak of a remarkably fine growth. From a recent survey made by an eminent mineral surveyor, it has been ascertained that the Abertare vein of coal, and the various veins worked so long and so profitably at the Diana Works, in the Rhondda Fach Valley, and known as the Three-foot Vein, the Bodriggall, the Abercynon, and several other rich seams all lie under the farm, and may easily be worked.—Further particulars may be had by applying to Mr. E. K. Davis, Surveyor, 61, Mark-lane.

**VALUABLE MINERAL PROPERTY IN GLAMORGAN-SHIRE.** — TO BE SOLD, BY AUCTION, by MR. W. MORRIS, at the New Inn Hotel, at Newbridge, in this county, on Wednesday, the 28th day of May instant, at Twelve o'clock noon, subject to such conditions as shall then be produced, CYNLWYD FARM, situated in the Rhondda Fach Valley, and in the parish of Ystradymddyng, in this county, comprising a farm-house and buildings, and upwards of 160 acres of freehold land, of which nearly fifty are wood-land, principally oak of a remarkably fine growth. From a recent survey made by an eminent mineral surveyor, it has been ascertained that the Abertare vein of coal, and the various veins worked so long and so profitably at the Diana Works, in the Rhondda Fach Valley, and known as the Three-foot Vein, the Bodriggall, the Abercynon, and several other rich seams all lie under the farm, and may easily be worked.—Further particulars may be had by applying to Mr. W. Morris, solicitor, Bridgend, at whose office a map of the estate may be seen.

**STAFFORDSHIRE.—EXTENSIVE SALE OF STEAM-ENGINES, COLLIERY IMPLEMENTS, BUILDING BRICKS, &c., AT BRADLEY LODGE COLLIERY, BUNTON, IN THE COUNTY OF STAFFORD.—TO BE SOLD, BY AUCTION, BY RICHARD CORBETT, ON THE PREMISES, ON MONDAY AND TUESDAY, THE 29TH AND 30TH DAYS OF MAY NEXT (AND NOT ON THE 31ST DAY OF MAY, AS PREVIOUSLY ANNOUNCED) AT THE STEAM-ENGINE, MACHINERY, WHOLESALE-PICTURE, COAL-PICTURE, WHOLESALE AND GROCER'S TOOLS, WEIGHING MACHINE, UPWARDS OF 2,000 OF GOOD WOOD BUILDING BRICKS, BRICK-LIMS AND SHOES, AND AN EXTENSIVE VARIETY OF OTHER MINERALS PROPERTY AND EFFECTS, AT THE ABOVE-NAMED COLLIERY, WITH A MORE FULL DESCRIPTION WILL BE GIVEN IN FUTURE ADVERTISEMENTS; AND CATALOGUES THEREOF WILL BE PREPARED, AND MAY BE HAD AT THE MACHINERY-HOUSE, AT THE STAFFORDSHIRE, OR AT THE OFFICES OF THE AUCTIONEER, NEW TOWN, BUNTON.**

**LONG-RAKE LEAD MINE, HALKIN MOUNTAIN.—THIS VALUABLE MINE, together with the very excellent steam engine (45-inch cylinder), boiler, fast-rope, engine and dressing houses, with about 200 acres of 8-inch pynes, and every requisite for immediate working, TO BE SOLD, BY AUCTION, without any reserve, on Friday, the 10th of June, at Three o'clock in the afternoon, at the White Horse Inn, Holywell, Flintshire.—Any further information may be obtained at the mine from Mr. George Roden.**

**VALUABLE MINERAL PROPERTY, NEAR LLANELLY, SOUTH WALES.—MESSRS. VENTON AND HUGHES have been favoured with instructions to submit to public AUCTION, the latter end of May or early in June, at the Auction Mart, of which due notice will be given, all the exceedingly VALUABLE SEAMS AND BEDS OF COAL (five in number), extending under about 200 acres of land, situated in the parish of Llanelly, in the county of Carmarthenshire, adjoining the Llanelly Colliery, and within three-quarters of a mile of the railway leading to the port of Llanelly, and terminating at the floating dock, from whence the distance is about four miles and three-quarters. The colliery contains, according to the estimate of a most experienced engineer, upwards of 2,000,000 tons of coal, well known in the market under the name of "Llanelly coal," in high quality for steam-boil and other purposes, and available for the manufacture of Messrs' Patent Fuel, now made use of in the Government revenue. The manufacture of coal or coke of the seams now offered for sale has been extensively worked by the Llanelly Coal Company, who are the proprietors of the adjacent works. The drainage and "washing" of a very considerable portion of this colliery has been effected by level, and consequently with a moderate capital.**

Particulars, with maps, sections, and conditions of sale, may be obtained on application to the auctioneers, 75, Angel-court, London.

**ANDREW SMITH'S PATENT WIRE ROPE, FOR STANDING RIGGING, LIGHTNING CONDUCTORS, STRAPPING OF BOATS, MINING, AND OTHER PURPOSES; ALSO THE SIZE AND WEIGHT OF IRONPIPE ROPE, AND IRON CORDAGE.** — Testimonials to that effect, with specimens, may be seen, and every information obtained, at the offices, 2, White Lion-court, Cornhill, at the Manufactory, Finsbury, Finsbury, and specimens may also be seen at the Mining Journal office, 8, New Broad-street, London.

ANDREW SMITH'S PATENT WIRE ROPE.

This rope has been in use for standing rigging to Her Majesty's Navy, and in a great variety of merchant vessels, for upwards of six years, and is giving the highest satisfaction; the rope is also employed in various canals and railways in different parts of the kingdom.

**THE PATENT SAFETY FUSE, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.** — This safety effects the speed, compact, and most expeditious mode of exploding the very hazardous explosive. From many testimonies to be adduced, they admit the following result, recently received from Dr. Taylor, F.R.S., &c., &c.—

"I am very glad to hear that my recommendations have been of any service to you. They have been given from a thorough examination of the great multitude of explosive vessels, and I am quite willing that you should employ my fuse in preference of that of others."

Manufactured and sold by the Petroleum, BICKFORD, SMITH, and BAYLEY, London, Clerkenwell.

**WANTED, A STEAM ENGINE.—WANTED TO PURCHASE, FOR A COAL MINE, A SECOND-HAND PUMPING-ENGINE, THE DIAMETER OF THE CYLINDER FROM 40 TO 45 INCHES, 6-FOOT STROKE, WITH BOILER, STEAM AND FEED PIPES, COMPLETE. ALSO, EIGHTY YARDS OF PUMPS, EITHER 10 OR 11 INCHES DIAMETER.**

LETTERS, PREPAID, STATING PRICE AND FULL PARTICULARS, ADDRESSED TO MR. E. JONES, THE DRILL, NEAR OWESTRY, WILL BE PUNCTUALLY ATTENDED TO.—APRIL 26.

**STEAM-ENGINE.—WANTED, A SECOND-HAND PUMPING ENGINE, NOT LESS THAN 50-HORSE POWER, WITH BOILER, PUMPS, STEAM AND FEED PIPES, &c., COMPLETE; DEPTH OF SHALT ABOUT 50 YARDS.**

LETTERS, PREPAID, STATING PRICE AND FULL PARTICULARS, ADDRESSED TO "H. H." POST-OFFICE, COLEFORD, GLOUCESTERSHIRE, WILL MEET WITH PLENTY ATTENTION.

**ENGLISH MANUFACTURE OF SPELTER.—THE GREAT ADVANCE IN THE PRICE OF THIS ARTICLE HAS LED TO A CONSIDERABLE RISE IN THE PRICE OF BLACK JACK ORES.**

PARTIES IN WANT OF THE MATERIAL MAY BE SUPPLIED WITH SAMPLES AND PRICES FOR DELIVERY, ON THE PORT BEING NAMED IN THEIR COMMUNICATION, ADDRESSED TO "P. R. W.", CARE OF THE EDITOR OF THE MINING JOURNAL.—200 TONS CAN BE SHIPPED IMMEDIATELY.

**TO THE SMELTERS OF BLACK JACK.** — PARTIES WISHING TO PURCHASE BLACK JACK ORES, MAY BE SUPPLIED BY APPLYING TO MR. JOHN WILLIAMS, AT WHEEL WHISKEY MINE, IN THE PARISH OF KEE, NEAR TRURO.

MESSRS. JOHNSON AND CO., OF BATTISON-GARDEN, HAVE JUST RETURNED THE PRODUCT OF A SAMPLE ASSAYED BY THEM AT 54 PER CENT., AND WHICH THESE GENTLEMEN STATE APPEARS TO BE OF VERY GOOD QUALITY.—WHEEL WHISKEY MINE, MAY 3.

**MANGANESE: DODDISCOMBEALEIGH, DEVON.—TO BE LET, FOR A TERM OF YEARS, BY PRIVATE CONTRACT, A CAPITAL MANGANESE GRANT, EXTINGUISHED OVER MANY ACRES OF LAND; THE MINERAL IS OF THE FINEST QUALITY AS WELL AS QUANTITY, COMMANDING A TON OF SEVENTY FATHOMS, FREE FROM ALL EXPENSIVE WORKS (GENERAL INEXPENSIVE TO ITS PRODUCTION), CRUSHING NEARLY TO GRANULE, IN FULL VIEW, AND CONTAINING THREE INCHES OF THREE, FOUR, AND FIVE FEET EACH, BESIDES VARIOUS SMALLER VENINS NEARBY ADJOINING.—PARTICLES AND SPECIMENS MAY BE HAD ON APPLYING AT THE OFFICE OF THIS JOURNAL, 8, NEW BROAD-STREET, LONDON; OR TO THE PROPRIETOR, TOWN HOUSE, DODDISCOMBEALEIGH, NEAR EXETER.**

**RAILWAYS IN GENERAL.—R. B. WATSON AND CO., OF LEEDS, BEG TO INTIMATE TO THOSE INTERESTED IN RAILWAY PROPERTY, CHIEFLY IN THE NORTHERN COUNTIES, THAT THEY ARE ENABLED TO GIVE INFORMATION, AND AN OPINION, AS TO THOSE LINES IN WHICH IT WOULD BE ADVISABLE TO INVEST MONEY AT THIS PARTICULAR PERIOD, BASED UPON A KNOWLEDGE OF THE TRADE OF THE DISTRICT, REQUIRED DURING A RESIDENCE OF TWENTY YEARS IN HULL, AND TWELVE IN LANCASHIRE, OF WHICH R. B. W. HAS BEEN A COMMERCIAL BROKER, AND SIX A SHARE BROKER; THEN GIVING THEM AN ADVICE THAT SEEMED BEST, AND SO P-POSED IN THE SHARE DEPARTMENT.—R. B. WATSON'S PURCHASE, TWENTY-ONE AND SEVEN EIGHTH RAILWAY SHARES.**

**BOTTLE HILL MINE, NEAR PLYMOUTH.—TO BE SOLD, TWO (TWO) SHARES IN THIS VALUABLE TIN MINE.—APPLY (POST-PAGE 12, "Z.") CARE OF MR. STEPHENS, 38, THREEMARSH STREET, LONDON.**

**BOLIVAR MINING ASSOCIATION.—NOTICE IS HEREBY GIVEN, THAT AN EXTRAORDINARY GENERAL MEETING OF THE PROPRIETORS OF THE BOLIVAR MINING ASSOCIATION WILL BE HELD AT THE OFFICE OF THE ASSOCIATION, 9, WARREN COURT, THREEMARSH STREET, IN THE CITY OF LONDON, ON WEDNESDAY, THE LAST INSTANT, AT TWO O'CLOCK IN THE AFTERNOON PRECISELY; FOR THE PURPOSE OF ELECTING TWO MANAGING TRUSTEES OF THE SAID ASSOCIATION, IN THE PLACE OF THE TWO MANAGING TRUSTEES GOING OUT OF OFFICE ACCORDING TO THE AMENDED PROVISIONS OF THE DEED OF SETTLEMENT, BUT WHO ARE ELIGIBLE TO BE ELECTED.—DATED THE 28TH DAY OF MAY.**

ALEXANDER ALLEN, SECRETARY.

**COPIAPO MINING COMPANY.—NOTICE IS HEREBY GIVEN, THAT A DIVIDEND OF TEN SHILLINGS PER SHARE ON THE SHARES OF THIS COMPANY IS PAYABLE AT THE OFFICE, 22, AUSTRALIA.—THE DIVIDEND WARRANTS ARE REQUIRED TO BE LEFT TWO DAYS FOR EXAMINATION.**

BY ORDER OF THE DIRECTORS,

FRED. GRELLIER, SECRETARY.

**EAST TRETOIL MINING COMPANY.—THE DIRECTORS HEREBY GIVE NOTICE, THAT AN ANNUAL GENERAL MEETING OF THE SHAREHOLDERS OF THIS COMPANY WILL BE HELD AT THIS OFFICE ON TUESDAY, THE 21ST DAY OF MAY INSTANT, AT ONE O'CLOCK IN THE AFTERNOON PRECISELY, WHEN TWO DIRECTORS GO OUT OF OFFICE BY LOT, AND THE VACANCIES SO CREATED ARE TO BE FILLED UP, AND TWO DIRECTORS ELECTED.**

BY ORDER OF THE BOARD OF DIRECTORS,

S. BUXTON, SECRETARY.

**ST. JOHN DEL REY MINING COMPANY.—THE TWENTH ANNUAL GENERAL MEETING OF THE PROPRIETORS OF THE ST. JOHN DEL REY MINING COMPANY WILL BE HELD AT THE COMPANY'S OFFICE, 8, TAKENHOUSE YARD, LOTHBURY, ON FRIDAY, THE 27TH INSTANT, AT TWO O'CLOCK PRECISELY.**

AT THIS MEETING TWO DIRECTORS WILL GO OUT BY ROTATION—VIZ.: J. D. POWELL, ESQ., WHO IS ELIGIBLE TO BE RE-ELECTED, AND GEORGE V. DURR, ESQ., WHO IS ALSO.

8, TAKENHOUSE YARD, LOTHBURY, MAY 3.

GEORGE D. KEIGH, SECRETARY.

**TREGOLIAN MINING COMPANY.—THE DIRECTORS HEREBY GIVE NOTICE, THAT AN ANNUAL GENERAL MEETING OF THE SHAREHOLDERS OF THIS COMPANY WILL BE HELD AT THIS OFFICE ON SATURDAY, THE 29TH DAY OF MAY INSTANT, AT ONE O'CLOCK IN THE AFTERNOON PRECISELY, WHEN THE ELECTION OF DIRECTORS AND AUDITORS FOR THE YEAR ENDING WILL TAKE PLACE, AND A NEW TRUSTEE OF TRUSTEES WILL BE APPOINTED.**

BY ORDER OF THE BOARD OF DIRECTORS,

S. BUXTON, SECRETARY.

**WEST WHEAL JEWEL MINING ASSOCIATION.—NOTICE IS HEREBY GIVEN, THAT A SPECIAL GENERAL MEETING OF THE SHAREHOLDERS OF THIS ASSOCIATION WILL BE HELD AT THE OFFICE, AS ABOVE, ON WEDNESDAY, THE 28TH OF MAY INSTANT, FOR THE PURPOSE OF INCREASING THE CAPITAL OF THE ASSOCIATION, IN CONFORMITY WITH THE PROVISIONS OF THE DEED OF SETTLEMENT.**

BY ORDER OF THE BOARD,

R. ROWLAND NICHOLSON, SECRETARY.

**CONTRACTS FOR WORKS—WILSONTOWN, MORNINGSIDE, AND COLTNESIDE RAILWAY.—THE DIRECTORS OF THE WILSONTOWN, MORNINGSIDE, AND COLTNESIDE RAILWAY ARE NOW READY TO RECEIVE TENDERS FROM CONTRACTORS FOR THE EXECUTION OF THE FOLLOWING WORKS, VIZ.—**

**MORNINGSIDE CONTRACT, NO. 1.—THIS LOT EXTENDS FROM THE EASTERN TERMINATION OF THE WILSONTOWN AND COLTNESIDE RAILWAY TO A POINT IN THE LINE OF BRIDGE, NEAR CAMBELLAND, ABOUT 200 YARDS WEST OF THE EDINBURGH AND AYR ROAD, BEING IN LENGTH 4 MILES 2 FATHOMS, OR THEREABOUT, AND INCLUDES THE ENTIRE CONSTRUCTION OF THIS PORTION OF THE RAILWAY, AND ALL THE WORKS CONNECTED THEREWITH, TOGETHER WITH THE MAINTENANCE OF THE SAME FOR ONE YEAR AFTER THE DATE COMPLETION THEREOF.**

**KNOWTON CONTRACT, NO. 2.—THIS LOT EXTENDS FROM THE POINT ABOVE-MENTIONED, IN THE LINE OF BRIDGE, TO A STAKE, EASY-LEVEL 13, AND STAKE IN THE LANDS OF CROMSTON, PART OF 5 FATHOMS, EXCEPT THE PORTION EAST OF THE COLTNESIDE IRON COMPANY'S TRANSMISSION, BEING IN LENGTH 2 MILES 3 FATHOMS, OR THEREABOUT, AND INCLUDES THE ENTIRE CONSTRUCTION OF THIS PORTION OF THE RAILWAY, AND ALL THE WORKS CONNECTED THEREWITH, TOGETHER WITH THE MAINTENANCE OF THE SAME FOR ONE YEAR, AFTER THE DATE COMPLETION THEREOF.**

PLANS, DRAWINGS, AND SPECIFICATIONS OF THE WORKS, TOGETHER WITH PRINTED FORMS OF BIDDING, MAY BE SOUGHT ON AND AFTER MIDNIGHT, THE 10TH INST., AT THE OFFICE OF THE SECRETARY TO THE COMPANY, 26, MILLER STREET, GLASGOW, TO WHOM ALL TENDERS MUST BE ADDRESSED, INDICATED.—WILSONTOWN, MORNINGSIDE, AND COLTNESIDE RAILWAY.

BY TENDER WILL BE RECEIVED AFTER MIDNIGHT, THE 10TH DAY OF MAY INST., AND THE DIRECTORS DO NOT HOLD THEMSELVES TO ENDEATH THE LOWEST BIDDER, NOR WILL THEY BE BOUND BY CLAIMS FROM PREVIOUS WINNERS WHICH MAY NOT BE PROVED.

Glasgow, April 16.

**BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—THE TWELFTH MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE WILL COMMENCE IN BIRMINGHAM, ON THURSDAY, THE 10TH OF JUNE, 1842.**

JOHN TAYLOR, GENERAL SECRETARY.

**COMBUSTION OF COAL, CHEMICALLY & PRACTICALLY CONSIDERED.** — THIS WORK WAS COMPLETED, 1840-1841.

BY CHARLES WYR WILLIAMS, ESQ.

LONDON: SIMPKIN, MARSHALL, & CO., AND J. WOOD, BIRMINGHAM: WRIGHTSON & WEBB.

**THE THAMES TUNNEL IS OPEN EVERY DAY (EXCEPT SUNDAY).**

From West to the existing south-dock, and thence with gas. The present entrance to the tunnel is on the Barry side of the river, close to Southwark Church. The tunnel is now completed, 600-800 feet in length.

By order of the Board of Directors,

J. CHARLTON, Clerk to the Committee.

COMPANY'S OFFICE, WATFORD, HERTFORDSHIRE, MAY, 1842.

—Correspondence to be addressed, to CHARLES WYR WILLIAMS, Esq., Simpkin, Marshall, & Co., and J. Wood, Birmingham; Wrightson & Webb, London Bridge, or the Thames Pier Wharf, Brixton, Southwark, with post-office directory of the works, see also at the Post Office and Billing.

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and making the wheels run outside the frame, is only applicable to the former, the latter remaining the same as before; " and the advantage of the alteration would be overruled if this circumstance were not taken into consideration." Thus it is that the additional advantage arising from the diminution of friction is so small, when you come to other than nearly horizontal lines, that the advantage is lost. There is yet another reason for increasing the gauge—viz., that we are enabled to construct the machine without being cramped in space for the moving parts, and affording a larger diameter for the boiler; it was this consideration, probably, which first induced practical engineers to pay attention to increasing the gauge above 4 ft. 8½ in. If we had to begin again, we should certainly make the gauge wider than 4 ft. 8½ in. In laying out future lines, particularly where the traffic is not great, the point of consideration will be to obtain the greatest advantage of the least expense, and to determine how much the gauge ought to be increased; and Mr. Vignoles stated, that, after having paid a deal of attention to the subject, he gave it as his opinion, that a gauge of six feet would be amply sufficient to satisfy all reasonable conditions. The Irish Railway Commissioners had observed, " that, at present, the load is seldom equal to the power of the engine, and, this being the case, but little would be gained by a greater breadth of road," with a view only of reducing the resistance, already much inferior to the power by which it is to be overcome, except by allowing an increased speed on the line generally, and on the level planes in particular. With a full and overflowing traffic, there is no doubt it would be advisable to employ the greatest possible breadth of bearing, but it is useless, or worse than useless, to incur a present expense for a benefit which it is not likely that there will ever be the means of taking advantage of, so that, unless under the circumstances just mentioned—viz., an incessant traffic, Mr. Vignoles thought that a seven-foot gauge was over the mark. Mr. Vignoles stated, that the consideration of curves was connected with that of the gauge, that it was a most important element in the consideration of railways, and would be taken up in another lecture. The rule given for raising the outer rail, on curves, required the gauge to be inclined as one element in the calculation, as also the height of the centre of gravity above the rails, which was also contingent on the gauge, as before explained.

## LAW INTELLIGENCE.

## ALDERMAN THOMAS WOOD AND THE TALACRE COAL AND IRON COMPANY.

## COURT OF QUEEN'S BENCH—MAY 7.

ES FATES CHAPPELLOW AND OTHERS v. S. T. WOOD.—This was a rule calling upon Mr. Alderman Thomas Wood, an attorney of the court, to show cause why he should not return to Messrs. Chappelow, Taylor, and Handley, or their attorney, all the documents and papers in his hands relating to the Talacre Coal and Iron Company, and also further calling upon him to answer the matters contained in the affidavit of those gentlemen.

The Solicitor-General and Mr. Butt appeared as counsel for Mr. Wood, and Mr. Shirley Kelly, Mr. Jarvis, and Mr. Bowring for Messrs. Chappelow and others.

The hon. Mr. Garroway, on behalf of his client (in his preliminary observations on the nature of the case) stated he could see no legal ground for the present proceedings, the only object of which seemed to be to give pain to the respectable gentlemen whose names he had appeared to advocate. This rule was obtained by Messrs. Chappelow, Taylor, and Handley, who were only three out of the ten directors of a company denominated the " Talacre Coal and Iron Company," established in 1859. Mr. Wood was one of the directors, and also one of the three trustees of the said company, and was also a partner in the responsible firm of Weston and Ellis, which firm acted as the solicitors of the company; Chappelow, one of the parties retaining the rule, became a shareholder in the company he being, as would be shown, well acquainted with all the particulars relative to the said company, and being also an auditor, acquainted with all the proceedings and all the facts relative to its formation, he having signed the statement of accounts "as examined and corrected," and therefore being well instructed as to the " corrections" of the same, under these considerations he the Solicitor-General wished to know upon what grounds the rule had been obtained, the rule called upon the collector of a public company to deliver up all deeds and documents relating to the company. By whom was the rule made?—By three directors out of ten—three shareholders out of a body of shareholders—they calling upon a director and a shareholder like themselves, besides being the collector and a trustee of the company to deliver up deeds and other papers, these parties being alone, and not having authority from the rest of the shareholders. The whole charge against Mr. Wood, as far as could be seen from the affidavit, seemed to be that he had made no undue profit from the sale of the property, this was fully denied, Mr. Wood had made a single trifling profit, and that fact Mr. Chappelow well knew, but, even supposing this change to be true, it was no cause for the consideration of their lordships. If the dispute was upon the grounds of undue profit it was a case for equity proceedings, but in this case the parties were only three out of ten directors, and those three had no right to take the present proceedings, being accompanied by the other seven. The whole appeared to be, that a property had been brought, and sold again at a profit, which was no cause for the Court to examine, he could find no charge against his client, and, perhaps, the other shareholders might also upon what grounds the present rule was granted.

Mr. F. Kelly stated the court was moved by Mr. Jenkins, who referred fully into the merits of the case at the time; the affidavit showed the grounds of the application, and an attorney of the court was called upon to appear upon the evidence of his own bill of costs. He would, if called upon, enter into and explain the grounds, but it would take up two hours of the time of the court to go into the particulars.

The learned friend took a brief enquiry of the facts might be given. Mr. F. Kelly had no objection, though he supposed the learned collector-general had read the affidavit of his client. In that affidavit it was set forth that since, and even before, the formation of the company Mr. Wood being the collector for the same, consulted acts, and made statements "to the public, the charges for which he claimed a fee upon his presentation until his bill of cost, or remuneration to be paid, and that bill entailed charges for acts done, every one of which had the effect of practising a fraud upon the public, and particularly upon the three individuals retaining the rule, the said attorney having published statements to facts, he well knowing them to be false—*e.g.*, instances, one of the charges was for a journey Mr. Wood made to Dublin, when, at a public meeting, he made a speech, instead, one of the most audacious speeches possible, extracts of which were printed and circulated, and which had the effect—the speaker being known, and stated thereby to be an Alderman, High Sheriff of London, and a solicitor in good position of having many parties to become shareholders in the company. Among the charges in the bill was a fee for the preparation of a Deed of Settlement, which was full of misrepresentations and misstatements, and the preparation of which was in his character as an attorney.

The Solicitor-General observed, that all this was undisputed, and, of course, supplied grounds for an injunction for conspiracy, and not for an application to that court.

A very singular contention then ensued, the Attorney-General having stated that he was engaged on behalf of other persons interested in the rule before the court,—one that the papers were not improperly given up; while Mr. F. Kelly contended that the Attorney-General had no right to appear at all, which was ruled by the Court.

The Solicitor-General argued, he would proceed upon the other charges, though he found no grounds for either the one or the other; he then read the affidavit of Mr. Chappelow and others, commanding upon the several paragraphs as he proceeded. "One upon 'till not permit us to follow this through the whole of his speech, which was a reciting memorandum upon the law all-ative, and never put the Court above these honourable, it would be impossible, without creating the whole of the law-officers, one of which consists of thirty-four pages, the other being of more than twenty pages." It was one instant he had given as abstract of each of the documents, as to his practice as an attorney before the Court, and, although we have obtained a copy of that of Messrs. Chappelow and others, it is as a matter of surprise that Mr. Alderman Thomas Wood, to whom an application was made, should have denied the opportunity advanced him of putting before the public his defense, as such, &c., with the attorney on both sides, the public might have been enabled to form an estimate of the merits of the case.

The learned friend then observed that over the proceedings were false or false, and, in respect of Mr. Chappelow, he was a professional attorney, and an attorney being shortly after the preparation of the bill, and knew every law connected with the company, and was very acquainted with the property, he having visited the same in company with Mr. Wood, and, further, Mr. Chappelow, before his retirement, was especially in the office of the company, and the bills always referred the client previously to his collecting his signature thereto. It was wholly his fault that Mr. Chappelow placed himself in the character of the company, by having prepared his bill, and signs his own signature to the preparation of the company's attorney, and induced other parties to do so. Mr. Wood was not a disinterested, still a lawyer, and still a shareholder, and the present proceedings were based entirely on the purpose of getting the books and papers of the company into the hands of the Attorney. 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## PROCEEDINGS OF PUBLIC COMPANIES.

## BRITISH IRON COMPANY.

The half-yearly general meeting of the proprietors of the above company was held at the London Tavern, Bishopsgate-street, on Friday, the 13th last. J. HORSLEY PALMER, Esq., in the chair.

The circular convening the present meeting, and the minutes of the last having been read, the CHAIRMAN apologised for the absence of Sir G. Larpent, who had unfortunately been confined to his house by illnessness for the past two months.—The directors' report was then read, as follows:—

REPORT.

The present is an annual general meeting of the proprietors, held in pursuance of the articles and regulations of the company. At this meeting two directors—viz., Mr. Crawford and Mr. Ravenshaw—will go out of office, and, having given the respective notice of their intention to become candidates for the office of director, and no other proprietor having done so, a resolution will be proposed that they be again elected. It will also be necessary for the meeting to elect an auditor, in the room of Mr. C. Bayley, deceased. The directors now lay upon the table the account of the receipts and payments of the company for the half year ending on the 30th June and 31st December last, and the balance accounts of these dates. The directors regret to say that the serious depression in the state of the iron trade, which existed at the time of the last meeting, has not only continued, but has even greatly increased since that period. So severely has it been felt by the ironmasters generally throughout the kingdom, that, with a view to its mitigation, an arrangement was entered into by them all for a reduction of the make of iron to the extent of 25 per cent., notwithstanding which, however, very low prices, and an almost entire want of demand, still continue. This state of things has, of course, had a most injurious effect upon the half-year's operations of the company; but the directors see no reason to alter the opinion which they formerly expressed, that, under an ordinary state of trade, the works in Staffordshire and at Abersychan possess the capability of affording profit equal to any works similarly situated. In the mean time, by the reduction of wages and other measures, every exertion has been, and continues to be made, to render the loss as small as possible.

The loss upon the half-year's trade account (exclusive of Rushon, where the writings are being brought to a close) is £441,111. 10s. 6d.; and upon the whole year, to the same principle, £2,511,111. 10s. 6d.

The directors have done everything in their power to bring some of the actions, against proprietors who have not paid the calls, to trial, but they have not yet succeeded in that object, in consequence of the great delay which has taken place in the courts respecting the pleas preferred by the defendants.

The CHAIRMAN stated he was placed in a most painful position; he had endeavoured, by every means in his power, to contribute to the interests, and to settle the difficulties, of the company, which as yet he had not been able to effect. With regard to the proceedings of the company up to the present time, there could be but little doubt, that the reversal by the House of Lords, of the judgment which had been given in their favour, was the sole cause of the bickerings and disputes that had arisen, and the enormous liabilities with which the company was now saddled. When that decision was reversed, it was decided that the directors should call for 25s. per share, to liquidate the principal part of the liabilities of the company, leaving an amount of £50,000 outstanding, and which additional capital would, if the calls made had been met honourably by the dissentients, been ample for that purpose, besides putting the company in a situation to wind up the concern; and it was impossible that the company could be in that much wished-for situation until the liabilities were greatly reduced. Resources might have been had to the money market, but the litigation at present proceeding had greatly impeded that course, by injuring the credit of the company. It had been hitherto impossible to wind up the company, for, in 1838, Mr. Attwood still continued his litigation, and no one would buy a concern with such a suit connected with it; and, when it was settled in 1840, trade had become bad, and at present was worse. It was not only the iron trade, but every branch of productive industry that had suffered from the late depressed state of commerce. In Staffordshire the furnaces were blown out in all directions, and the reduction in wages was quite appalling, for they were at present working up the mineral from the mines at £8. per week, from which circumstance some idea could be formed of the state of the trade. However, the liabilities must be met—it was the interest of all concerned to get rid of them, and, with that view, within the last week or two, a meeting of the most influential of the shareholders was held, who, he believed, had some plan under consideration to put a close to the liabilities, by finding some method of liquidating the demands against the company, and a plan of that kind would, if feasible, have the support of the directors. It was as much the directors' wish, as that of any of the proprietors, to bring the company to a close, but, in the present state of the company, and of trade, it was impossible; it must still be carried on for a while, and the remainder of the 25s. per share he paid up, when, in the course of a year, he trusted some plan would be brought forward, by which all the difficulties of the company would be got rid of, and the concern brought to a close, to the credit and interest of all.

The promissory notes of the company, amounting to £60,000, which were issued in May, 1841, for the purpose of enabling the arrangement with Mr. Attwood to be carried into effect, had, in the present month, been renewed for twelve months longer, at 5 per cent. interest, instead of the 6 per cent. previously paid.

Mr. W. Crawford and Mr. Herdell Ravenshaw were then re-elected directors, and Mr. J. Simon Smith was elected an auditor in the room of Mr. C. Bayley, deceased.

Mr. BROWNSHAW stated that he had been requested by his partner, Sir G. Larpent, in consequence of his illness, to attend a meeting of some of the principal proprietors, and had taken pains to make himself acquainted with all the facts, and had come to the conclusion that the most energetic measures must be adopted to get rid of the liabilities of the company. Several plans had been suggested, but none was in a sufficiently advanced state to be brought before the meeting, but something must be done to remove the grievous disputes between themselves, and the only course to be pursued would be to meet their engagements fully, and, having placed the company in a position where its credit would stand good, to await the revival of trade to effect the sale of the works, if such a course should be thought advisable, but which, at the present time, was utterly impracticable. He hoped some plan would be found, and one that the directors could bring forward. The proprietors at present seemed to be divided into three classes; one class was fully sensible of the responsibility, and was ready and able to meet it; another class had paid the calls, but was unable to make further contributions; and the third class refused to pay any of the calls, which it declared were illegal. He should wish as the first step towards a settlement that all should be unanimous, and submitted to the proprietors that the directors should be called upon to communicate with the leading proprietors, and arrange some plan by which their troubles, occasioned by the state of trade and non-payment of calls, might be removed, and by which those who wished to get rid of their liabilities might do so by abandoning their interest. He was quite aware of his responsibility as a partner in the company, and would not shrink from it even if it were in his power, and he trusted that the other shareholders would have the same feeling, and meet the question with the candour and courtesy which characterise the British merchant.

The CHAIRMAN said, he gave Major Richardson the credit of having proposed a plan, in the first instance, by the creation of new shares; but their master had decided that that plan was contrary to the Deed of Settlement, and would require an Act of Parliament to carry it out. For his own part, he wished he could at that moment send everyone out of that room free from liability—which must be met; and, thus, the more their bickerings added to the discredit of the company, the more did their difficulties increase in meeting them. He trusted, therefore, that whatever plan the leading proprietors should fix upon, all would be agreed upon it.

Some conversation then ensued upon the plan submitted by Major Richardson, at the termination of which, Mr. BROWNSHAW moved, and Mr. HERDELL RAVENSHAW seconded, the following resolution:—

That it is expedient to take prompt and effectual measures for liquidating the remaining liabilities of the company, and, therefore, that the directors be, and they are hereby requested, to consult with the principal shareholders as to the best plan for accomplishing that object, and to report their opinion in a general meeting, to be called specially, for the purpose of receiving such report.

Major RICHARDSON then said, he had no objection to the motion of the last, gentleman, and approved of the sentiments he had expressed, except in one or two instances; he objected to the way in which those shareholders who, on legal grounds, refused to pay calls, which he thought illegal, were mentioned; he could not see that they were bound in honor to pay what was not due, or to go to law because others did, losing thousands every year.

The "united shareholders" had refused to pay the calls, under the opinion of the best counsel they could get. The gallant Major then adverted to the losses the company had sustained, and produced a bill which had been prepared for filing in Chancery, by stating that, in a court of equity, every shareholder was now to have justice done to him. The losses (estimated Major R.) had been enormous, amounting to about £1,000,000, all of which was gone except about £1,000,000, which had long paid no dividends out of the capital of the company, and contrary to the Deed of Settlement. The property could have been, according to the valuation, sold for at least £1,000,000, beyond the liability, when the question of the dissolution of the company was mooted.

Mr. BROWNSHAW stated it was useless talking about the past transactions, which, if entered into, could not be productive of good; the company was in a certain position now, and the practical point was, how to get out of its difficulty.

The CHAIRMAN stated, it would certainly have been better for all if the company had never been formed, and the conduct of the original directors, in signing such contracts, was absurd; but the thing was, that in 1838 the whole town was mad, and the iron mines were looked upon as gold; the price then of about £16. to £17. per ton, at which price it was expected to keep.

With respect to the capabilities of their property, they made a profit of Abercynon and Cwmgwrach in 1838 of £10,000; 1839, £6,000; 1840, £2,000; 1841, £1,000. The price of iron, in that period, falling from £16. to £10. The directors could not be blamed for those losses, they took the effect of circumstances. Whatever was done should be with a view

of bringing the company to a close, and his best endeavours should be exerted to gain that end.

Mr. MCLOUGHREY enquired if the action for calls would be abandoned, in consequence of the proposed plan? and was answered in the negative. Some conversation then ensued, during which it was stated that the liabilities amounted to about £40,000, from which was to be deducted the extra stock of iron, arising from the late want of demand.—The meeting then adjourned.

## WEST WHEAL JEWEL MINING ASSOCIATION.

The general meeting of the proprietors of this company was held at the offices of the company, 23, Threadneedle-street, on Monday, the 5th instant. J. HERRON, Esq., in the chair.

The advertisement convening the present meeting was read, and the minutes of the last confirmed, after which the SECRETARY read the report of the committee of management.—The report of the agents of the mines was also read, for which see our "Mining Correspondence."

## DIRECTORS' REPORT.

Having read the report of your committee of management in Cornwall, and that of the respective agents, giving an account of the condition and prospects of the mine, your directors have to bring under your notice the situation of the association, in a financial point of view. It will be shown by the balance-sheet upon the table that the sum in hand, together with the proceeds of the ensuing sale of ore (forming the funds now available), will be exhausted by the middle of July next. It is, therefore, evident that, without great and speedy improvement, the object of the company cannot be carried out—namely, working the mine judiciously and vigorously to a profitable result; your directors, therefore, having consulted with their colleagues, suggest that they should be empowered to make further calls upon the shareholders to an amount not exceeding 10s. per share, to be called in instalments not exceeding 10s. per share, and at such periods as may be deemed most expedient, being confident the period is not far distant when the mine will be in a position to meet her own expenses, which is the first step towards a profitable result. In consequence of this increase of capital having been anticipated, an application has been made to the lords, through their agent, which has been very favourably received, for a further reduction of the sum in debt, which abatement is confidently anticipated will be conceded to the lords. This concession is of such manifest importance, that it would be superfluous on the part of the directors to commit to enlarge upon it further. A cordial and earnest co-operation on the part of all concerned is the surest and best guarantee for attaining what is firmly believed to be the inevitable result of our labour—namely, blasting and valuable mine.

The CHAIRMAN stated that there was nothing very brilliant in their accounts, but it must be satisfactory to the proprietors to see that there was a gradual improvement. All that was required to carry out their wishes was a little more patience and a little more money. The mines were conducted in a skilful manner, and were in a good situation, which ought to be sufficient to inspire the proprietors with confidence, as well as the information that the last call of 10s. per share had been fully paid up.

Mr. HARVEY stated that the reports so fully explained the present position and future prospects of the company, that he could add but little to them. They were now getting into the ore ground under the seventy fathoms level, and the lodes were generally much improving. He then, at some length, explained the progress that had been made in the several levels and shafts.

In respect to the additional capital of 10s. per share, the CHAIRMAN observed that one call of 10s. per share would be made immediately, and he hoped that amount was all that would be required for the present year; another 10s. would be called for in the beginning of next year.—Mr. E. TURNER, M.P. for Truro, considered the report as very satisfactory and very important. One thing he had always looked upon as a good sign, which was the change of the ore from black to yellow, and which change had taken place in their mine. The readiness with which all the calls had been paid up reflected great credit upon the concern. He held 300 shares, and was ready to pay up the future calls, as his confidence in the management was the more increased by the reports that had been read that day.—It was then moved by Mr. GARLAND, seconded by Mr. TURNER, and carried unanimously.—That the reports and statement of accounts be received and adopted.—Mr. TURNER then stated that he had read a letter from Mr. Balglin, of Cheltenham, who had lost twenty scrip shares, and for which last shares the directors had agreed to give him new shares, on his giving them an indemnity, and paying the expense of the same; but he objected to the charges made by the company's solicitor, who now offered to take whatever sum his own solicitor should decide upon as proper. The calls were all paid upon the shares, but the scrips had been lost.—Mr. J. Herron was unanimously re-elected a director of the company.—Mr. GARLAND then moved, and Mr. TURNER seconded, a resolution, which was carried unanimously, voting the thanks of the meeting to the chairman, directors, and managers of the company, for their zeal and attention to the interests of the proprietors.—In reply to a proprietor, Mr. TURNER stated that he had not so much fear as to the effects of the new tariff with respect to the mines; but that a protecting duty of 7s. per ton would be quite sufficient.—The meeting then adjourned.

## LONDON AND CROYDON RAILWAY.

At a special meeting of the proprietors of the above company, held at the London Tavern, on Tuesday, the 10th inst., for the purpose of gaining the consent of the proprietors to the Bill now in Parliament for the formation of a road to the commencement of the Croydon Railway, near Corbett's Lane, after some strong opposition from Mr. Levi, but in which he was almost unsupported, only five proprietors having voted for his amendment, "that the Bill be read at the next annual meeting," a resolution was carried, approving of the proceedings of the directors, and sanctioning the application to Parliament for the necessary powers.—The meeting, after a vote of thanks to the chairman, adjourned.

## NATIONAL PROVINCIAL BANK OF ENGLAND.

At the annual general meeting of the proprietors of the above company, held on Thursday, the 12th inst., the directors' report showed that branches had been established at Dover and Shrewsbury, under very favourable circumstances. The assets available for a dividend amounted to £3,762,17s. 6d., from which it was proposed to pay a dividend of 6 per cent. on the year 1841, which would leave a balance of undivided profits of £9,113, 1s. 6d.—Some conversation then ensued, during which the report was read and adopted, and ordered to be printed.—Four directors were appointed for the ensuing year, and the meeting adjourned.

## NATIONAL LOAN FUND SOCIETY.

The annual general meeting of the above society was held at the London Tavern, on Wednesday, the 11th instant.

T. LAMIE MURRAY, Esq., in the chair.

The advertisement calling the meeting having been read, the directors' report was submitted, which stated that the progress of the society, in the number of new policies, had not been so great during the past as in the preceding years, the severe and continued pressure experienced through most every department of productive industry having diminished the means—and, consequently, the facilities—of obtaining the security of future provision afforded by life assurance. The number of policies issued by the society have augmented from 12,000, in the year 1840, to 17,750 at the close of 1841, and to 18,900 at the present period. Another source of satisfaction is in the fact that the actual has been less than the expected mortality, the sum already paid, and for which claims are admitted, being 13,891, 16s., while the sum expected amounted to 14,000. The former amount is even augmented by the sum of 1,000, caused by the accidental death of an otherwise healthy member. The arrangement for the conversion of the capital of the society into paid-up shares had been effected, with the exception of 1,000 shares, in the hands of proprietors whose residences are not accessible.

The CHAIRMAN, after a few preliminary observations, observed that they might take credit to themselves for having largely increased in the public mind a disposition to obtain security for the future, by means of Life Assurance; if they looked to facts, they would find that, since the institution of the National Loan Fund Society, little better than four years ago, nearly forty offices had been established by a kind of impulse, the consequence of the publications of the National Loan Fund, and the pains taken by the Society to disseminate its principles. Any person acquainted with the calculations upon which the security of offices of this kind was founded, would say that an office which had been safe, within a period not longer than four years, to issue 1,000 policies, had arrived at as high a point of security as could be desired of longer standing. All that was required in the calculations of life assurance was such a number of policies as would form an average, and this had been fully attained by the society.

Mr. MORRIS TOWNE moved the adoption of the report, which being adopted, the CHAIRMAN wished, before putting the resolution, to observe that in the next year it would be their business to make a division of profits. The proprietors were aware that one-third of the profits would reach them, and, considering the large capital that was now guaranteed to the policy-holders, one-third of the profits would not be considered extravagant.—The resolution was then carried unanimously, after which four directors and two auditors were unanimously re-elected for seven for the ensuing year.—In reply to a proprietor, the CHAIRMAN stated that the income of the society for the past year was £2,000.

## ASSAY COMPANY.

At the annual meeting of the proprietors of the above company, held on the 5th inst., at the London Tavern, it was shown that the rate-prime, though not of novelty, was no longer of doubtful existence, if considered with prudence and economy; it appeared that 21.34 "pounds" of lead in the south division of the company's plant were considered applicable to the calcination, and, in the north division, 16.62 pounds. The total quantity, fully and partially, in calcination was, in August last, 1,050 pounds. The first shipment of lead, the produce of the first season of these operations is Assam—viz., of 1,000, and calcined in Elbowbar last—amounted to 18,120 lbs., and it is reckoned, on average, 2s. per pound, being considered better than any that has been produced before.—After some consideration, the report was adopted, and ordered to be printed, and the directors and auditors who had vacated office by rotation were re-elected, and the meeting adjourned.

## ON THE SILURIAN ROCKS AND OLD RED SANDSTONE OF THE SOUTH OF WESTMORELAND.

A memoir, by D. Sharpe, Esq., F.G.S., was read at a late meeting of the Geological Society of London, the object of which was to give an account of the Silurian rocks and old red sandstones of the south of Westmoreland, to define approximately their geographical boundaries, and to compare the formations with the equivalent deposits in other parts of the kingdom.

SILURIAN ROCKS.—After referring to the labours of Professor Sedgwick, Mr. J. Phillips, and Mr. J. G. Marshall, the author describes the Silurian deposits under the heads of—1. Coniston limestone. 2. Blue flagstone rocks.

1. Coniston Limestone.—This formation, the lowest examined by the author, consists of strata of hard dark blue silty limestone, and of thin beds of dark brown shale, the former gradually diminishing in thickness as they ascend in the series, and disappearing towards the top of the deposit. Organic remains abound in some of the beds, and, from their agreement, in part, with species described in Mr. Murchison's work, the author places the Coniston limestone among the lower Silurian rocks, but without attempting to define its exact relative position.

2. Blue Flagstone Rock.—The shales of the preceding deposit pass upwards into dark blue flagstones, apparently destitute of organic remains. The beds agree in dip and strike with the strata of the Coniston limestone, and the faults which affect that formation extend into the flagstones.

3. Windermere Rocks.—This great series is separated, by Mr. Sharpe, into three divisions: the lowest, which succeeds conformably to the flagstones, consists of grey schistose grits and argillaceous slates, with occasionally thin beds of limestone; the middle, of hard argillaceous and gritty rocks, and beds of soft shale, and the uppermost of hard purplish greywacke. No well defined organic remains were found in any part of the series by the author, but he alludes to the fossils discovered by Mr. Marshall in the lowest division, and described as belonging to lower Silurian species. Mr. Sharpe, nevertheless, declines placing the Windermere rocks on an exact parallel with any of the Silurian rocks of Mr. Murchison, but he points out their precise agreement with the lower members of the Donibaghshire upper Silurian series, described by the late Mr. Bowman. A line drawn from Coniston Water-head to Liddale, a distance of twelve miles, would cross the whole of the strata at right angles to their strike; and though the same strata are considered by the author to be frequently repeated in parallel anticlinal ridges, yet the total thickness of the three divisions is estimated to exceed 8000 feet.

4. Liddlow Rocks.—This series of strata is stated by Mr. Sharpe to rest unconformably on the middle and upper divisions of the Windermere rocks, and to be composed of hard purplish grey argillaceous strata. It abounds with casts of shells, which mark the lines of stratification; and the thirty-four species enumerated in the paper are almost entirely assigned to these strata, figured and described in Mr. Murchison's *Silurian System* as Liddlow fossils. The author, however, does not place the Westmoreland beds on an exact parallel with any portion of the triple division of the Liddlow rocks of the border counties. The uppermost strata are shown to pass gradually into the thin stone or bottom of the old red sandstone, which Mr. Sharpe considers ought to be removed from that formation to the Liddlow rocks, as seven of the fourteen species of shells which occur in the thin stones of Herefordshire having been found low in the Liddlow series of Westmoreland. As a further proof that this alteration ought to be made, Mr. Sharpe states, that where the old red sandstone rests on the Windermere rocks, the beds in question are wanting. The principal district occupied by this formation extends in a west and east direction from the neighbourhood of Kendal to the valley of the Lune, and is a north and south direction from Benson Knob nearly to Barfettont Kest; and other patches of Liddlow rocks occur south-west and north-west of Kendal, and at the west base of Underbarrow Scar.

Old Red Sandstone.—This formation is stated to present, where best developed, the threefold division of loose conglomerates, red marls, and thin bedded red sandstone, the last constituting the lowest part of the series. It is shown to occupy several detached districts, the principal of which are in the valley of the Lune, from the neighbourhood of Sedbergh to Kirby Lonsdale, where it expands to the north-westward over an area of no great extent—the valleys of the Kent, Sprint, and Mint, and the vicinity of Shap and Tebay. Mr. Sharpe considers, as probably belonging to the old red sandstone, the bed of brown gravel which covers the whole of the valley of the Lune to its junction with the Rathay.

GENERAL REMARKS.—In comparing the Westmoreland strata with their equivalents in other parts of the kingdom, the author states, that the triple division of the old red sandstone, noticed above, agrees remarkably with that of Herefordshire, the only difference being the disintegrated state of the conglomerates and the absence of the cross-stones. The gradual passage from the old red sandstone into the Liddlow rocks is shown to coincide with the descriptions given by Mr. Murchison of the junction of the two formations in Herefordshire. The Liddlow rocks of Westmoreland are stated to resemble generally those of the border counties of England and Wales, but not to admit of a similar subdivision, owing to the absence of a representative of the Aymestry limestone, though they agree, as before observed, precisely with the Liddlow series of Denbighshire. With respect to the Windermere series, Mr. Sharpe makes no attempt, as already stated, to fix its precise geological position with reference to the divisions of Mr. Murchison, but he dwells upon the exact accordance in structure and succession of beds displayed by it and the lower portion of the upper Silur



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and such they are), then that there are grounds for an indictment for conspiracy. This was the opinion we first entertained and expressed, and we regret that certain parties, now being sued, did not act on our counsel. The case is so fully entered into in the report as not to require further comment or remark, which we reserve until the judgment is given.

In our present Number will be found the concluding paper of Mr. S. B. ROGERS, on "Data for the Use of Blast-Furnace Managers," with a letter from that gentleman, to which it is unnecessary to direct attention, for those connected with iron works will find it with interest, and, as we believe, with advantage. We avail ourselves of the opportunity of acknowledging our obligations to Mr. ROGERS, for the series of papers, which, unsolicited, have been furnished by that gentleman. The importance of papers of this nature, whether as affects iron, or any other metal (more especially at the present moment, when the New Tariff bears upon us so heavily), will, we hope, induce others equally well informed, but working in other "fields," to render a like series.

The half-yearly general meeting of the British Iron Company was held yesterday, on which occasion we were glad to find that the course observed was one far more discreet than that which it has been our province to report upon of late. The proceedings were characterized by a more proper feeling than has been heretofore evinced, as regards the interests of the company, and even Major RICHARDSON assented to the propositions. The opinions we ever entertained of this company remain the same; a fraud, a gross fraud, was practiced in the outset—law, equity, and the Lords, have decreed that justice shall not be fairly meted out—and hence the position of the company at the present moment. The directors, we believe, have uniformly done their best, but we have had occasion to remark, and fairly so, on the aristocratic feeling displayed. Without descending to democracy, they have now, however, as it appears to us, exercised a discreet judgment—such, indeed, as we might expect from gentlemen of character and mercantile habits and experience, in adopting the measure proposed at the meeting—viz., that the board of directors should communicate with the principal proprietors, with the view of liquidating the claims upon the company—the consequence of which must be, that, at the same time, they will release those who are unable or unwilling to pay their quota. We trust that better times are before us, and we augur that this property will fall into a few hands—will be carried on as a private company—and, in the end, will prosper.

We have received several communications on subject of the series of papers, styled "A New System of Philosophy," which have lately appeared in our columns, but not inserted, from their personal or polemical character, and involving questions of a theological nature. We stated in the outset that we were not answerable for the representations made—while, in many instances, our opinions were opposed to those of Mr. MONTAGUE, and, we need hardly add, where any observation which might bear a construction such as that put upon it by several correspondents, as even tending to Deistical or to *Atheistical* doctrines—such were as far from the principles or opinions we hold, as are "the poles asunder." We regret that Mr. MONTAGUE should not, as we contemplated, have concluded the series of papers by other *méthod*, and by drawing those conclusions which were to be expected from the data afforded. Our object was solely that of directing attention to geological research, and bringing forward the result of personal investigation, in localities of which we have but little information, as illustrative of the theory advanced by Mr. MONTAGUE, and we can only again express our regret that the papers—imperfect as we consider them—should have been so produced, without being attended with those beneficial results we anticipated to arise from the discussion of the question.

#### ON THE ADULTERATION OF ZINC.

Mr. Robert Mallet, in a communication to the *Mechanics' Magazine*, directs public attention to an important fraud in the market of metals, recently discovered by him.—"Having had occasion (says Mr. M.) for a considerable quantity of zinc, in a great state of purity as I could readily obtain it, for the purposes of my patented method of preventing the corrosion of iron, I purchased and employed a quantity of waste clippings of cast or patent zinc, obtained from a zinc worker's establishment, and used to consist principally of the best Belgian zinc. Circumstances occurred, during its use, to make me suspect this zinc contained some foreign metal; and, on submitting to analysis several different specimens of sheet zinc, just as received, I found them all to consist of variable mixtures of lead and zinc. The alloy of lead in some amounted to nearly one-fourth the amount of the zinc; in one specimen to one-third; and the greater number to between a sixth and a fifth of the weight of the zinc. My curiosity having been excited, I have since examined several other specimens of sheet zinc, and find most of them alloyed with lead. Its adulteration is obviously of the most mischievous tendency, as regards the chief purposes to which sheet zinc is applied—promoting its oxidation, and increasing its weight as a covering. The end in view is adulteration; it is, however, almost plain. Zinc is now about 49s. per ton, in sheets; lead is only 19s. per ton—hence, a metal consisting of two parts zinc, and one part lead—crude zinc being 37s. per ton—will only cost 32s. 10s. per ton, and can be sold at 49s. per ton, so that there is a clear profit upon the adulteration of 31s. per ton; added to which, the new metal is denser than zinc, and hence more weight must be sold to give the same surface. The adulterated zinc might be at once recognized, as experienced hand, by its superior flexibility to that which is pure."

**THE NEW TARIFF.**—In the House of Commons, last night, on the motion for the House resolving itself into committee on the New Tariff, Lord Howick moved a resolution—that, in making a new arrangement for the customs duties, it is not expedient to impose different rates of duty on the same articles when imported from foreign countries or from British possessions, in any case where no such difference now exists; and in those cases in which such a difference already exists, it is not expedient that it should be increased.—A long debate ensued, in the course of which Sir Charles Lennox (the effect of whose observations was considerably marred from the low tone of voice in which he addressed the House) said, that though he felt unwilling to oppose the tariff, he felt bound to give the attention of the right hon. gentlemen opposite to the injury the proposed alteration with respect to tin would be likely to inflict on the country with which he (Sir C. Lennox) had the honour to be connected. Mr. Huskisson himself recommended that the removal of tin should always be gradually and cautiously effected. It was agreed that the proposal of the right hon. gentlemen would cause a variation in the price of the article, and, at the same time, lead to an increase in the revenue, but he (Sir Charles Lennox) did not see why the interest of the producer should be overlooked. Approving of the general provisions of the New Tariff, he felt bound to make these observations on behalf of an extensive and meritorious class of persons.—After several speakers had addressed the House, Sir R. Peel eloquently defended the views of the colonies to a preference over foreign states in respect to duties on importations into Great Britain. The motion of Lord Howick was eventually defeated by a majority of 172. The adjournment of the House for a week will prevent Sir R. Peel presenting with the discussion of the tariff until Monday week, after which time it is intended, if the House allow him, to devote four days a week to its consideration, by which he hopes to make effectual progress.

**PARISIAN INCREASED IMPORT DUTY ON IRONS IN PRUSSIA.**—They are from Berlin, on the 27th ult., that a special committee had been appointed, in order to decide on the expediency of increasing the import duty on foreign raw and cast iron, and on certain goods. The Prussian General-Consul at England, M. Borchardt Helmuth, had arrived in Berlin to present the deliberations. The committee had petitioned the king to raise the duties on foreign iron, but it was believed that his proposal would not succeed to their purpose.

#### ORIGINAL CORRESPONDENCE.

##### DATA FOR BLAST-FURNACE MANAGERS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Included with this I beg to hand you the concluding letter on blast-furnace management. I have endeavoured to condense the whole process—or, at least, all the essential parts thereof—into as few words as may convey my meaning fully and plainly; and of this I am quite sure, that, by obtaining a proper analysis of his materials, and by attending to the principle I have endeavoured to enforce (viz., to assort his mines and fluxes, so that the residuary earths will readily fuse into a clear and colourless glass, or cinder, without protoxide of iron), any furnace manager may regulate his processes, as at, at all times, to obtain whatever result he may desire; this has always been termed an impossibility! so Mr. Crawshay, of Cyfarthfa, said, with respect to puddling on iron bottoms, now more than twenty years ago, when I offered that important discovery to him; and so said Mr. Shorthouse, of Birmingham, now thirty years ago, when I proposed to make sulphuric acid at 1d. per pound from iron pyrites! The days of impossibilities are, however, fast fading away. \* \* \* I trust that the series of papers furnished will have the desired object, in directing the attention of others to the importance of combining polemical science with practical experience. I have contributed my humble efforts in the promotion of the cause, and shall be well satisfied if that the object be alone in part achieved.

S. B. ROGERS.

Nantyglo, Monmouthshire, May 9.

[The paper referred to by Mr. Rogers will be found inserted elsewhere, while we have felt it our duty, in another column, especially to direct attention to the series, as one of high value and practical utility.]

##### MINING IN IRELAND—KNOCKMAHON MINES.

TO CAPTAIN JOHN PETHERICK.

SIR,—In your letter, dated the 27th ult., inserted in the last Number of the *Mining Journal*, you stated that you succeeded me in the year 1833—that the mine was in the dilapidated state you complained of—and the month's proceeds were not more than sixty tons—also, that the productive ground discovered by your predecessor was nearly exhausted. How is it possible that I, having obtained my discharge ("dismissal") in August, 1831, can be accountable from that time to 1833, fully one year and half vacancy by us as managers (a time apparently of maladministration that any one may claim if he choose—as regards myself, I will not have it)? The before-mentioned charges appear strange for a person stating facts, and who has neither leisure or inclination for controversy. By whose authority do you question me why I did not retain my situation? This can be explained satisfactorily by parties interested, whom I yet believe will do you and me justice. You may rely on it I do not seek any merit due to you, neither would I accept of it, had there been a spare left for me by Mr. Croker, between Mr. Foley's recommendation of the said mines to the Mining Company of Ireland, in the year 1826, and yours of 1833, that I should term real "fair play."

JOHN DAVEY.

##### MINING IN IRELAND—KNOCKMAHON MINES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—It affords me considerable pleasure to find my statement of facts, relative to the discovery of the Knockmahon Mines, has attracted the notice of your readers, and been corroborated by so many respectable witnesses. Allow me, in a few words, to show the evidence adduced:—Capt. Davey: "I claim the discovery."—Mr. Foley: "Capt. John Davey undertook working the mine under favourable opinions."—Fair-Play: "Made considerable returns of ore."—Mr. John Petherick: "I readily admit that a large and exceedingly rich course of ore had been discovered long before Capt. Davey left the company. So that I feel proud, rather than shame, having such substantial witnesses, for having stated that it was through the skill and perseverance of Capt. John Davey the inexhaustible riches (of Knockmahon) were brought to light," and claim the honour of having obtained a verdict to that effect, from, not a packed, but a jury the very reverse, and consider there is no room for any one to complain of the verdict, so as to keep that part of the question in agitation longer. This was all I claimed, and, through the medium of your impartial paper, have obtained it. I wish, however, in conclusion, to state that I consider Mr. John Petherick has too much trepidation in the steps of your correspondent, "Fair-Play," in claiming his assertions "to be substantially correct in every particular," and am happy to have it in my power to remove much of the obliquity thrown on Capt. D. by both "Fair-Play" and Mr. John Petherick, from their own communications. Mr. Petherick writes—"When, in 1833, I succeeded Capt. Davey, the company had sustained a very serious loss on the working during the half-year immediately preceding." Now, Sir, Capt. Davey left in 1831, and Mr. Petherick succeeded some other than Capt. Davey, to whom, at all events, the loss for that six months must be attributable, "as well as for a considerable time previously;" and Mr. Petherick also shows that, though he confirmed "Fair-Play's" statements in every particular, "that Captain Davey had picked out her eyes," &c.; that, under some other "mismanagement," the eyes had been picking out for some eighteen months, and even then sixty tons a month could be raised in this blind mine. Surely your readers are not blind, and can perceive the attacks of "Fair-Play" and Mr. John Petherick are not straightforward facts. The disgrace merited by the publication of them is a sufficient reward. With respect to the machinery, Capt. Davey says—"I acknowledged it was imperfect, and greatly retarded our progress." There are various facts might be stated to show this was not owing to Capt. Davey's want of skill, but, at a future day, should your correspondent question the truth of my assertions, I will repudiate much of the calumny so copiously bestowed on Capt. D., by facts no clearer than those contained in this communication.

S. A.

Camborne, May 9.

##### MINING IN IRELAND—KNOCKMAHON MINES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—As one interested in the prosperity of the works of the Mining Company of Ireland, I shall offer one or two remarks on the "controversy which has lately appeared in the *Mining Journal*, as regards Knockmahon Mines and 'our captains.'" As far as ever I was able to learn, Mr. Davey, while employed by our company, enjoyed the confidence of our directors in as full and ample a manner as Mr. Petherick; and, from the fulsome egotism of both gentlemen, as displayed in their letters, I should say such confidence ought not to be too freely bestowed on either. The principal agent, or managing director, of our works, I always understood to be Mr. Parry—indeed, several of our agents, I should say, may put forth an equal claim as to being principals with Mr. Petherick, in their own department. As regards Knockmahon Mines, it might be of importance to inquire to what extent Mr. Petherick has been assisted in the management of these mines by skilful and efficient "mediators?" An officer, who fully understands his business, will ever be more ready to give full credit to his staff, for whatever attains their joint efforts, than to make bold complaints of being "unjustly deprived" of his own share of credit in the expedition, or, as Mr. P. has done, to claim the whole credit of "having succeeded under the most difficult and discouraging circumstances." But where, after all, is the great merit due to any of the parties? According to Mr. Petherick's own account, and that of his friend, "Fair-Play," "the mine was reduced to the ruinous state described by mismanagement alone;" consequently, whoever succeeded to the management, it was easy for them to show an improvement. I think Mr. P. and his friend have attempted to prove a little too much, unless they can go a little further, and claim the merit of "dismissal" of the ignorant manager; and, if one exchange was good, so may another, and I would beg to give a hint to the responsible parties to look to this; principle, as well as subordinate, ought always to be well looked after when once they begin to praise themselves.

A REMARKER ON THE MINING COMPANY OF IRELAND.

Lithgow, May 10.

##### VENTILATION OF MINES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Your correspondent from Tregoldowen Mine says, in his communication of the 28th ult., "We have hoisted the rise from the forty to the thirty fathoms level, whereby we have derived considerable benefit from ventilation." Another extract from the mines of the Cornwall Mining Company—"We have communicated a wind from this (sixty fathoms) to the fifty, which will greatly ventilate the sixty fathoms." Now, Mr. Editor, is it not lamentable to reflect that, according to the present practice of miners, the men are half suffocated, and disease thereby aggravated, or the men profligated to various disorders, because a hole

or a window, long delayed by foul air, has not been completed? What would be thought of a man who endeavoured to improve the health of his fish by holding them in the air till half dead before he threw them into his pond? But a trout, it seems, is worth more than a man; it has been fully proved by the gas companies, if any entertain doubts on the subject, that air may be conveyed through pipes to any extent, above, below, east, west, north, or south. Surely, wherever a man can go, an air-pipe may be carried. Why might not a cylinder like a gassometer be used (with valves arranged as I shall hereafter describe)? The resistance would, of course, be much less than that of a gassometer, as there would be scarcely any resistance at all in the transmission of air through the pipes with valve open; 3000, in the course of a year, would not be thrown away in ventilating even a poor mine, for more work would be done, with less injury to the men, whilst the current expenses would be comparatively less. A man who works in bad air is a fool, and a self-murderer. \* \* \*

Penzance, May 2.

A. T. J. MARTIN.

##### TALACRE COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—The remarks published in your Journal of last week, and the comments you have promised in your next publication on the proceedings of Saturday last, in the Court of Queen's Bench, will, I trust, arouse the attention of the shareholders of this company to the critical position in which they stand, for, which ever way that case is decided, it is to them a matter of importance, one that will not admit of delay—one that will not admit of doubt or vacillation—but will require measures of a definite and energetic character; it is obvious that the step to be taken must be that alluded to in your last Journal—viz., to indict the whole of those who were originally connected with these vile transactions, and make them answer for their conduct at the bar of the Old Bailey.

When the learned counsel applied for the rule against Wood, it was decidedly that it was applied for in furtherance of ulterior measures and it was observed by the learned Judge, that supposing the facts stated to be proved, public justice would not be satisfied were proceedings to stop short of a criminal prosecution. I understand that the intention then stated and determined upon has not been abandoned, and that evidence sufficient to leave little doubt of the issue has been collected, and I would earnestly request your assistance in calling upon the shareholders, if they have any claim to manliness and self-respect, not to let the burden of this fall upon those who have already suffered so much by throwing themselves into the breach in their behalf; it is not a matter of generosity, nor simply of feeling, but one of policy to themselves, for if the verdict is against the defendant, it is a duty they owe to society to see that he pays the penalty of his misconduct; and, if the decision should be in his favour, the company then will be in the situation of "Sinned and the old man of the sea"—it will be a struggle for mastery, either he must be overcome, or, like those unfortunate who fall into the hands of that respectable gentleman, they will be strangled; the evil will come to their own doors, and they will not be permitted to escape, for there is never any compromise between honesty and dishonesty, when the power is in the hands of the latter. The question, then, of ruin or combined resistance, will shortly be for them to determine upon, and no effort of theirs can be effective unless acted upon with promptitude, and carried forward with becoming spirit. It has occurred to me, Mr. Editor, whether it would not be worthy the consideration, and beneficial to the interest of legitimate mining associations, to assist in prosecuting those who have been guilty of gross and undeniable frauds upon the public; and whether the formation of a society for that purpose would not materially tend to produce a greater degree of confidence in the minds of proprietors, and to excite a spirit of prudent enterprise in these undertakings, that would be, in a high degree, useful to the community; it is not to be supposed for a moment that mining interests do not suffer by the prevalence of companies got up by persons without character or capital, just as the exposure of the West Middlesex Assurance Company tended to alarm the proprietors, and even to shake the stability of every association which appeared to be based on the same principles, and established for the purpose of insurance, however honourable their object, and however safe the investment of capital might really be in their hands. Upon the unfortunate position of Mr. Chappelow, as noticed by you, I may observe that the integrity and unswerving determination which have marked his conduct under trying circumstances, call for our approbation, as his misfortunes awaken our sympathy for himself and family, whilst the chicanery and duplicity to which he has been subject will receive the disapprobation and contempt of every honest man.

Great Russell-street, Bloomsbury, May 12.

##### ON THE GENERATION AND COMBUSTION OF SMOKE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Mr. Williams's letter in your Journal of the 16th ult., brings to my mind the story of the Irish drummer, who, being employed in administering the usual discipline to a refractory subject, was, at at every stroke of the "cat," interrupted by his crying out, "Strike higher!" "Strike lower!" The administrator, after following for some time these directions, without being able to satisfy the recipient, at last exclaimed, "Sure, now, there's no satisfying you—a'm not doing all I can to please you!" "Pleased," however, he was determined not to be; and my friend Mr. Williams seems pretty much in the same humour. He objects to my algebraic formula, which he says has nothing to do with the question of issues; he objects to the "abundance of undisputed chemical facts and references," which he considers unnecessary; and he condemns, as totally inadmissible, the reference to the practical results which are daily and hourly given, because "this is boggling the question of issues, and confusing the disputed fact." And yet, although I am neither to "strike high," nor to "strike low," he calls upon me to prove the point in dispute! Let me, however, examine Mr. Williams's letter a little in detail. He commences by accusing me of want of candour or want of careful reading and inferential deduction. He has forgotten, perhaps, the maxim, *non quippe exempla debet sequi omnia pati*, for, although I may want of candour in any of my letters, I might refer him to his own statements respecting the errors which he has so often stated to exist in my essay *On the Chemical Constitution of Coal* for a sufficient justification, if I were disposed to follow his example in this matter. But I rather think that what Mr. Williams calls careless reading, in reality arises from his stating the same subject very differently at different times. Let us take, as an example, the subject of the length of the flame in a furnace. In his letter he desires that he has ridiculed Tregoldowen's statement about the flame of a furnace having a length of six feet; and he now states that the flame in his own furnace is twenty feet long. In another place he has stated that "perfect combustion" would give no length of flame whatever, because it must be explosive after once the combustible and the supports are mixed at the required temperature. But as Mr. Williams holds out that his furnace does produce perfect combustion, and does also mix the gases and the air together at the temperature which he considers best for combustion, it follows either that he can have no flame, or else that he does not get perfect combustion, according to his own definition; and here we see that, without his reader being either careless or unscientific, Mr. Williams can easily bring forward evidence to show he has misquoted, by taking either side of the question and omitting the other.

Mr. Williams, however, appears by no means desirous of putting his reasoning powers to the test, for he avoids throughout the question which he professes his desire to elucidate—viz., whether smoke is or is not combustible? And he denies his right to prove the negative, and calls upon me to prove the affirmative, while, as already stated, he forbids the use of the only means by which proof can be afforded. But while Mr. Williams condemns others for their careless reading, he himself affords some singular instances of it in his own letter. I have, in the letter of the 28th of January (in which his last is a reply), stated what smoke consists of; and its combustion is, of course, nothing more than a change produced upon it by its combination partly among its own constituents, and partly with the atmospheric oxygen. No one, of course, can suppose that any portion of the smoke can be

sphere. These changes are produced whenever there is sufficient heat and sufficient oxygen; and an excess of the latter does not produce smoke, as Mr. Williams seems to imagine, unless the heat be insufficient to raise the temperature of the whole gaseous matter to the extent required for combustion. The production of smoke is, therefore, far more likely to be caused by admitting cold air into the furnace than hot air, as in the latter case smoke can scarcely occur, although it will certainly not be economical to admit more air than is absolutely required for perfect combustion. I do not understand how Mr. Williams can deny the possibility of consuming smoke after it is once formed, for it certainly appears to me that by his plan of furnace the smoke must necessarily be formed at the exterior part, and afterwards consumed by admitting a further portion of air behind the bridge. The only furnace which really " prevents the formation of smoke" is that patented by Mr. Samuel Hall, by which hot air is brought to the front of the furnace, and mixes with the products of the coal the very instant they are formed or eliminated. Mr. Williams's furnace appears to me the least likely of any to accomplish this object (the prevention of smoke), unless he heats the air previous to its admission. The most perfect plan, however, to get rid of the nuisance of smoke, appear to be those where the two methods of gradually coking the coal, and also supplying it with heated air, are united. In many of the inventions for consuming smoke these two methods have been unitedly employed. The most recent is Godwin's patent, in which the fuel is coked by slowly and gradually bringing fresh coals into the body of the furnace from a hole below the furnace-hole, and the air is heated by the same apparatus. Chester's apparatus also both cokes the coal and heats the air; and several others have done the same—the earliest, I believe, having been invented by Robertson, of Glasgow, about the year 1801. There is, however, no mystery about the combustion of smoke. The accomplishment of this, by means of admitting air to the fuel through a hollow or split bridge, was the subject of three distinct patents, by as many different persons, about the years 1820 or 1821, which are all exactly similar, and are described in the first volume of Gill's *Technical Repository*. Mr. Parkes also, I believe, had a patent for a split bridge many years since; and in the sixth volume of the above-named periodical (for 1824) there is a description of a method invented by a blacksmith at Dudley for consuming smoke, which he accomplished by merely leaving two holes in the opposite sides of the furnace, each hole being the size of one brick, and which was found effectually to accomplish the object! It is not my intention, however, to describe all the inventions for this purpose; there are innumerable ways in which these principles can be carried out, and the only thing is to select those attended with least trouble, and which are not injurious in other respects.

I should have replied earlier to Mr. Williams's letter, but I was not aware of its publication until a few days ago. I cannot, however, conceive that he can have any very powerful arguments to bring forward on the subject, as I never yet found any one among those who are so very anxious to throw upon their opponents the *onus probandi*, who had any very conclusive arguments to their own mind, but in general they rather hope, from their opponents' arguments, to gather something to strengthen their own case, by finding a flaw in that of their adversary.

*Kirk-street, May 5.* — *CHARLES HODGKIN.*

#### BEST SIZE AND FORM OF BOILER FOR A WATT'S BLAST-ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—A short time ago I wrote to you to make an inquiry, through the medium of your Journal, from your numerous correspondents, what would be the best form and size of a boiler for a steam-engine of Watt's construction, with a steam cylinder of from 10 to 15 inches diameter, and to blow with a pressure of from 2 to 2½ tons—say, 2½ tons—combining quickness of production of steam, economy of fuel, and repairs? I am sorry to observe that none of them here in any way noticed the inquiry. I feel the more surprised of this, as I am confident you have many scientific and practical men among your numerous readers—at least, I much wish to know which is most effective and economical, those made upon the Cottish principle of " slow combustion," or those of " rapid combustion." I find here many adaptation for the old dome-formed boiler, with raised bottoms, varying from ten to twenty feet diameter, such as have been in use for the last century, whilst a great variety of shapes have been brought forward within the last twenty years—a period, one would have supposed, long enough to have produced some one combining the requisites I name. Cornwall being a large mining county, having a great number of engines, and having no coal of its own, but what must be purchased at an increased expense, by freight and carriage, the engineers (of which there are many respectable ones, as Mr. Boys, Mr. Sims, Moore, Harvey and Co., and others) must necessarily have turned their attention to its economy. And in Lancashire there must, of course, be many respectable men, who have turned their thoughts to the production of steam and saving of fuel. Surely, some one will be kind enough to give their opinion—at least, the result of their practice. Mr. C. W. Williams appears to have been actively employed in developing the combustion of coal; from his practice, which appears to have been commenced in the year 1823—nearly nineteen years—some strong facts as to form and principle must have met his apparently scrutinizing eye, that would tend to establish a " fit and proper" form for the purpose desired. A. B.

*Shropshire, May 5.*

P.S.—Since writing the above, I have read a notice in the *Mechanics' Magazine*, of March 19, of an engine being erected at Mr. Cuthill's factory, Thomas Bank, performing the work of sixty horses, and consuming only 2½ lbs. per horse power per hour. What can be the form of that boiler?

#### RAILWAY ACCIDENTS—THE BEST MEANS OF PREVENTION.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Of the accident which has occurred on the railway between Paris and Versailles, and which no epithet can adequately characterize, I shall make the most, for the benefit of the living. The breaking of an axle is said to have been the cause of the accident. I have somewhere said—I think in the *Mining Journal*—that, with the use of iron wheels upon iron rails, no man who gets into a railway carriage can say that in a few moments he shall not be a corpse. I also said, that it would be well if the winter passed over without the death of some fifty persons being traceable to the breaking of an axle or of an iron wheel. The winter has passed over, it is true, though the summer has not commenced without the removal of such a catastrophe. Although the occurrence was in France, I hope it will lead to the inquiry I have so long urged in England. Surely, after this awful calamity in our neighbour, it will not be deemed necessary with us calculating Englishmen to wait, or put off, the enquiry, until some such event may occur. After the loss of life on the Versailles Railway, and the injurious attendant losses, I hope we shall have no more reasoning about the safety of railway travelling, as compared with stage-coach travelling. If the accident in question had happened in one of our tunnels (Kingsbridge or Box, for example), it is more than probable that, out of 1000 passengers, a thousand would never again have seen the light of day; and, if on one of our high embankments, the disaster might have been still more calamitous. Better and cheaper would it be to have bridges or viaducts across valleys as high as St. Gotthard's, than the buried tunnels and frightful unpeopled embankments, through and over which thousands of persons are daily compelled to pass, at the imminent risk of their lives. In proportion as the source of human happiness is monopoly in the society of the wealthy diminished, for the weak to be able to get into the hands of a few influential favourites, who can not care for the welfare of human life, if its possession would lessen their gains. Not long since I urged on a great luminary the importance of using wooden wheels, as a means of security, when he cogitately replied, that he would oppose the use of wood in any shape to the misuse of his power! Nothing, I will assure, can ultimately prevent the use of wood rails and wood wheels, but I wish the use to be the means of preventing a further misery of human life, and not the consequence of it. The Annex of dangers in stone navigation and railway travelling (in either of which an immense loss of life may occur to an instant) are not analogous. In the former they are caused, such as collision, and other disasters from a thick fog coming on suddenly and uncontrollably against which human vigilance could not guard; but, in the latter, they are, for the most part, caused, and may be guarded against, or their consequences altogether prevented. Thus, every iron wheel, and every rail, at this moment is safe, in itself to break, and incite hundreds of persons to death and suffering.

I have now to state what is, perhaps, but little known, and which need cause alarm to the mind of every reflecting man. Railways rails, although made of the very best materials, and with the stoniest cast and strongest

that can be bestowed upon the making of them, daily and hourly undergo deterioration in quality, in consequence of continued vibration on iron rails at a high speed, the axles, in point of fact, undergoing the process of continual hammering, and the worse the road so much the greater will this deterioration, in a given time, necessarily be. This constant vibration—or hammering, if you please—changes, in some sort, the nature of the iron, whereby the same axle, which at first was good, at length becomes bad. If this is denied, I will give my authority. With wood rails, or proper wheels upon iron rails, this deterioration could not take place. All I want is inquiry into the allegations I have from time to time made, and, surely, we have now quite enough before us to justify such inquiry. Permit me to call on you, Sir, as a public man, to aid in this beneficial design. It is rather singular, that, on Saturday last, I wrote a letter, and sent documents, to " *Le Ministre des Travaux Publics*" at Paris, upon this very subject. He might have got my letter the day the accident happened. I have also forwarded a copy of this to the same Minister.

*Moorgate street, May 11.* — *THOMAS PARKIN, C.E.*

#### WATER-WHEELS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I beg to say that, in my calculations of the 20th ult., published in your Journal, No. 348, the wheel friction was omitted. The buckets in the fore part of the upper radius are computed as being all full, when allowance should be made for three or four of the uppermost, which are at all times about empty. The tables in the *Practical Miner's Guide*, particulars of which you published in No. 342, 12th March last, are fair calculations, wherein the length of the crank appears to be allowed for the friction of the axle, &c., &c.; and, no doubt, the author proved it by practical results, previous to its publication.

*Example.*—Suppose diameter of a wheel to be 48 feet, then the arms from the centre to the rim are 24 feet; deduct the length of the crank, less 3—21 feet, being one-eighth part deduction for wheel friction, or, as  $48 - 2 - 21 = 26 - 3 = 23$ , instead of 27.

In Adcock's *Engineer's Pocket Book* is a table showing the power, &c., for breast-wheel—viz., 8½ cubic feet per second, acting on the float board of a wheel 13 ft. 6 in. diameter, will create a force equal to 512 lbs., and perform 9½ revolutions per minute. 512 lbs.  $\times$  9½ revolutions, amounts to 4915 real power per minute; performed with 64 feet per second, at 62½ lbs. per foot, is 30,937 per minute—nearly as 1 is to 6.

There is no inventor without his prejudiced opponents, be his inventions ever so valuable; but no engineer of the present day can be expected to countenance new-fangled opinions (arising from bigotry), when totally destitute of theoretical reasoning. " Your (Bickleigh) correspondent's letters are very extraordinary ones." Six distinct opinions have now appeared in your columns, diametrically opposed to " A Miner's" assertions, neither of which comes so high as 1 is to 3. You cannot find, Mr. Editor, an author to support his assertions. I may use the words of another of your correspondents—viz., " that I conceive he is endeavouring to establish an error." He knows what a radius means, but is not so much experienced in mathematics as to know the use of it, for, in his wheel calculations, he uses the diameter instead of the radius.

In No. 340 is a letter from Mr. " N. V." requiring the height of a column for a pressure engine, to be equally effective with a 50-foot wheel, each having 1000 cubic feet of water per minute; in reply to which, I beg to say, that, if the stream can be raised 100 feet high, acting as a pressure, it would perform work equal to 70 per cent., when a water-wheel of the best construction—say, Bickleigh wheel—carrying the whole of the water three-quarters down from the top, cannot possibly be made to perform work equal to 35 per cent.

W. WHITING.

*Vale of Clwyd, May 9.*

#### THE NEW TARIFF—THE MINING INTEREST.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I am much at a loss to understand that our mining interest is likely to be prejudiced by the low-priced ore from Cuba being mixed with the higher—which has been so much talked of—and thus introduced at the minimum duty of 2½ per cent. Suppose, then, we take two parcels, of 100 tons each, by way of illustration:

Prod.	Stand.	Rate, &c.	Per ton.	Amount.	Duty.	Amount.
100	100	42½	42½	4250	2 p. c.	106 12
100	116	70	8 11	885	2½	22 17
						132 12

Now, if these two lots be mixed, we get—

Prod.	Stand.	Rate, &c.	Per ton.	Amount.	Duty.	Amount.
100	106 12	42½	42½	4250	2 p. c.	106 12

Here there certainly appears to be in favour of the miners the sum of 564. 17s.; but, Sir, I have been informed, and, I believe, well informed, that the expense to the Cuba miner on each ton of ore is about 10d., and that all which accrues above that amount is profit, so that on his 100 tons, of 20 produce, at 18d. 1½s. per ton, there would arise a profit of 8d. 1½s. a-ton, or 873d.; whereas, on the 200 tons, of 12½ produce, at 12d. 3s. per ton, there would only be 2d. 3s. per ton, or 350d.

Am I wrong in my calculations or my judgment?—or both—when I suppose the Cuba mines are not likely, at considerable trouble and expense to themselves also, to pay over under such circumstances, by which they will reduce their profit on the first parcel from 873d. to 430d., in order to save the sum of 564. 17s., the difference in the duty? A. MIXON.

*Fossall-road, Brixton, May 7.*

#### GEOLOGY.—A NEW SYSTEM OF PHILOSOPHY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—It appears from your last paper, that some person, under the name of " Ferri" (a nephew or cousin of Nature, perhaps), has come to the rescue of Mr. Montague, " the child of Nature," and he commences by saying that Mr. M. has not thought it worth his while to answer my pony attacks. It is certainly true, very true, that he has not answered them, but he has thought it worth his while to shirk my first letter, by misrepresenting what was stated in it, and as to reply to his own distortion of it, and he has also condescended to postpone, for a few weeks, his reply to my second. My attacks may possibly be puny, but, if so, why does not Mr. Montague dispense of them satisfactorily? If he cannot answer pony attacks how will he meet great ones?

" Ferri" says—" If ' Ferri' will take the trouble to refer back to Mr. M.'s preceding articles, he will find nothing said of geologists being mortified and disconcerted in not finding the granitic floor in the boring of Grenoble." In reply to this, I give an extract from the 10th paper " On a New System of Philosophy," *Mining Journal*, No. 343:—" The late experiments of M. Agassiz (*Qy.* Arago), in digging for hot water in the Paris basin, as it is termed, are anything but gratifying to these theorists, or to the observing public; originating in a false conception of the phenomena of Nature, they have ended, as all such experiments must end, in mortification and disappointment to those who were so anxious of success; they found no granitic floor, no hot water, and the increasing heat in descent was only as to show the utter instability, not to say absurdity, of theoretic calculation on local phenomena." Having thus proved Mr. " Ferri's" main assertion to be untrue, I go on to his next.

" Ferri" purports—" Speaking from my own knowledge, the generally accepted opinion of these few worshippers was, that at or near the depth arrived at in the Grenoble boring, they would find the water of the boiling point. I challenge " Ferri" to show the " how," the " when," and the " where," the French geologists, or any other geologists, stated what he calls, in his home language, " the generally assumed opinion," that water would be found at the boiling point at a depth of 600 yards from the surface of the earth; and, as I know he cannot bring forward any such proofs, I may say of this assertion, also, that " it is untrue, and there's an end of it."

I might proceed with the rest of " Ferri's" letter, and dispose of it in like manner, but, as it really is useless to fight with stones, I leave him other judgment subordinate to their own fact. Now for a few lines to Mr. Montague. In his note to my letter of the 14th ult., he says that his forthcoming article " On Volcanic Action," *etc.*, will, perhaps, be the best reply to my observations. So far good, I am content to wait. But I may tell Mr. M. for his government, that to make his answer good for anything, it must satisfactorily dispose of the following questions:—Why should the bottom of the ocean be, as he asserts, at a white heat, in consequence of a continual fire, and, at the same time, the bottom of a bathtub, or boiler, remains cool, though placed in water in it, over an intense fire? Why should the heat stand so long in the water? Why should the water stand so long in the heat?—In my first letter (to which he refers) I said that " the radiating heat could not manifest itself in the upper crust of the earth," because I have shown that the upper stratum of water in the ocean or a bathtub is warmer than the lower stratum? A. W.

authority had Mr. Montague to make the assertion (which I have quoted above in answer to " Ferri"), that geologists were mortified by not reaching the granitic floor at Grenoble? Can he give extracts from the writings of M. Arago, M. Elie de Beaumont, M. Dufresnoy, M. Malot, or any other geologist engaged in that undertaking, stating that they wished or expected to reach the granitic formation? To the last of these questions I request Mr. Montague's particular attention, as his neglect to give a sufficient reply to it must cause some such inference as this to be drawn by those of your readers who have perused his correspondence—" If Mr. Montague, for the sake of supporting a favourite theory, venture to misrepresent facts occurring so near to us as Paris; what reliance can be placed on his statements respecting ' the Deserts.' "

BRIDGEND, May 9.

#### NEW TARIFF—MINING INTEREST.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Having heard, indirectly, that the assertion made by you, of one of the mining deputations from Cornwall having lately been on a visit to the Minister (Sir R. Peel), was not in accordance with the fact, I beg to say that the authority on which such representation was made to me (should it be necessary), you are at liberty to publish, and of which you are already in possession.

H. E.

LONDON, May 11.

[We are obliged to our correspondent; the information came from a quarter which we should have considered indisputable, but we do not think it necessary to give publicity to the names of parties—to any of the deputations, or others interested, we shall readily afford the information.]

#### INSTITUTION OF CIVIL ENGINEERS.

MAY 10.—A paper was read descriptive of " Messrs. Marshall's New Flax Mill at Lerd's," by Mr. Combe.—This mill consists of one room, 129 yards long by seventy-two yards wide, covering nearly two acres of ground. The average height is twenty-one feet. The roof is formed of brick, groined arches of thirty-feet span, supported by cast-iron pillars; an impermeable coating of coal-tar and lime is laid over the arches; upon that is a layer of soil, eight inches thick, sown with grass. This immense room is lighted and ventilated by a series of skylights, thirteen and a half feet diameter, one at the centre of each groin; throughout, beneath the building, extends a cellar, containing the shafts for communicating the motion from a pair of 100-horse power steam-engines to the various machines in the mill. The flues and steam cases for warming and ventilating, and the revolving-fan for forcing the air into the room, are also placed there, with the gas and water pipes, and the rest of the space is used as a warehouse. All the details of the construction of this extensive building were given, with the cost of it, which appeared to be no more than that of an ordinary fire-proof mill; the advantages of this description of building were stated to be—the convenience of supervision, the easy access to the machines, the power of sustaining a uniformity of temperature and moisture, the absence of currents of air, and several points of minor importance.—In the discussion which ensued, all these advantages were fully confirmed by several members, but particularly by Mr. Smith, of Donaston, who originated this mode of construction for a weaving shed of the extent of half an acre.—Mr. Marshall saw this shed, and, although the plans for mills of several stories high were made out, as abandoned them, and adopted the present plan, which had been completely successful.—The adoption of similar constructions for machine manufactories, and even for agricultural buildings, was strongly urged, on the ground of the advantages arising from concentrating all the processes under the supervision of one person, and the economy in moving heavy masses. Arched roofs were stated not to be more expensive than wood and slate coverings, and to be quite as sound, when well executed; and of their greater durability there could not exist a doubt.

The Description of the Explosion of a Steam-Boiler at the Pen-y-darren Works, South Wales," by Mr. Stephens, was an interesting account of a sad accident.—The boiler was forty-one feet long, seven feet diameter, with a centre tube flue of 4 ft. 2 in. diameter; the thickness of the plates throughout was half an inch; the ends were flat, with rings of angle iron; the pressure of the steam, to which the safety-valves were weighed, was 50 lbs. per square inch. From appearances after the explosion, the tube, which was collapsed in a very remarkable manner in its entire length, had been softened by the heat having been left dry along the upper side, and the sudden injection of water from the force-pump had caused a development of a large body of steam, which had crushed the steam from one side. No opinions were given in the paper on the theory of the causes of explosions, the author having restricted himself to the absolute detail of facts, and recommending the adoption of the steam whistle, to warn the engineers of the lowness of the water in the boiler, which is the general cause of accidents.

Mr. Lindsay Carnegie presented to the institution, and explained the construction and action of his patent stone-piercing machine, to be used instead of the ordinary jumper tool for boring treasles holes in railway blocks, stones for marine constructions, &c. The machine appeared extremely compact and simple; its merits, and the economy derived from its use, were borne testimony to by Mr. Vignoles, Mr. Smith of Donaston, and Mr. Braithwaite—the latter gentleman having peculiar opportunity of giving an opinion, as he had used for some years Mr. Carnegie's stone planing machine which is employed for preparing the slate-tablets and other works. The price for piercing holes appeared very low. The labour on a railway block, with two holes 1½ inch diameter, bored 6 inches deep, and a space 9 inches diameter placed to receive the chair, had been undertaken at Arbroath Quarries for 2½ per block, and the contractor had cleared much money by them.

## DATA FOR THE USE OF BLAST-FURNACE MANAGERS.

BY SAMUEL BALDWIN ROGERS, B.Sc.

(Mineral and Metallurgical-Chemist, Nanticoke, Massachusetts.)

## 6.—FURNACE MIXTURES.

In preparing charges for the furnace the quantity of coke is uniformly one barrow, or about 5 cwt., and the quantities of mine and flux are, from time to time, regulated so as to obtain a desired quantity, or quality, of pig-iron. If it should be the object of an ironmaster to procure from the smelting process a result suitable for foundry purposes, or for conversion into soft bar, or plate-iron, he must assort the materials of his furnace charges so as to obtain a dark grey pig, which can only be effectually and constantly done by using such a mixture of mines and fluxes (supposing his fuel to be always of a good and uniform quality) as shall leave, after the separation of the iron and oxygen, the necessary proportions of silica, lime, and alumina to form, at the temperature of the furnace, a clear and colourless glass or cinder—namely, one of alumina, two of lime (not limestone, as it is observed), and three of silica; say, for instance—

	lbs.	lbs.	lbs.	lbs.
Red vein mine (calcined)	1,000	containing 40% iron, 20% silica, 10% alumina		
2400	"	654	745	345
2000	"	590	499	169
3000		2284	1418	673

This, upon eight charges, or barrows of coke, would be 62 lbs. per barrow—to which add the ashes of eight barrows of coke

	lbs.	lbs.	lbs.	lbs.
451	"	16	960	24

	lbs.	lbs.	lbs.	lbs.
3881		2284	1778	673

(The oxygen of the materials is omitted in the calculation, and also whatever lime, or other earths or oxides, if in small quantities, for the reason stated below).

In the above mixture we should have, in the quantity of mine requisite to yield 2288 lbs.—say, one ton—of iron, 1778 lbs. of silica and 673 of alumina; then, if we take the weight of silica as data, the quantity of alumina should—to be in the proportions previously stated as most desirable—be, in even numbers, 593 lbs.; consequently, in this case, we should have an excess of 104 lbs. of that earth—which excess should be neutralised by the addition of adjusting mines or fluxes, containing, in the quantity used, an excess of 312 lbs. of silica; the desired proportions of silica and alumina will then be obtained, and the quantity of limestone to be employed should be that which may contain of caustic lime two-thirds the whole weight of the silica, or twice that of the alumina in the mixture employed. Let us, however, try another mixture, so as to at once reduce the quantity of alumina to the desired proportions—say,

	lbs.	lbs.	lbs.	lbs.
Red vein mine	1,000	containing 210 iron, 110 silica, 100 alumina		
Grey vein mine	648	" 341 "	266	"
New vein mine	2400	" 1428 "	860	158
Ashes of coke	451	" 16 "	960	24
	3331		2284	1778

Here we should have 1616 lbs. of silica and 528 lbs. of alumina, or a deficiency of 11 lbs. of alumina in the quantity of materials required to yield 2284 lbs. of iron. In this case the proportions of silica and alumina would be sufficiently near for all practical purposes; the quantity of lime then to be put at double the weight of alumina—namely, 1056 lbs., or limestone sufficient to yield that quantity of caustic lime, exclusive of what may be required to neutralise the silica and alumina of the limestone.

Again—say the mines employed consisted of

	lbs.	lbs.	lbs.	lbs.
Black balls	2000	containing 80% iron, 440 silica, 100 alumina		
Red vein	840	" 400 "	32	"
New balls	1600	" 420 "	360	"
Coke ashes	451	" 16 "	960	24
	3331		2284	1778

Now, if we take the alumina as data, we should, in this case, have an excess of 90 lbs. of silica; thus, three times the weight of the alumina would be 1616 lbs., which should be the weight of the silica; but we have 1778 lbs. of that material, and, consequently, an excess, as above observed, of 208 lbs., which excess should be neutralised by adding adjusting mines or fluxes, in such quantities as may contain an excess of 30 lbs. of alumina; the exact proportions of silica and alumina would then be obtained, and the quantity of lime should be determined in this, as in the preceding mixtures, by adding as much limestone as may contain of caustic lime twice the whole weight of the alumina employed, or two-thirds the weight of the silica. As it would be nearly impossible to adjust blast-furnace mixtures to such a nicety as to constantly obtain the exact proportions of silica and alumina allotted to in these papers (*i.e.*, one of alumina and three of silica), the operator must be satisfied with as close an approximation to those proportions as the nature of his materials, and the irregularity of his supplies may readily permit of his principal object being to give a slight excess to the alumina instead of to the silica; say, any weight of it under 20 lbs. in the whole of the earthy residues that may happen to be in the materials required to yield a ton of pig-iron—which excess of alumina may be easily and effectually neutralised by a slight increase in the weight of lime; say, of caustic lime, twice the excess of alumina, for, in such a case, it would be preferable to increase the dose of lime than to disturb the mine mixture, merely for the sake of making so small an addition as 60 lbs. in the amount of silica; but, for an excess of silica, the safest mode of proceeding would be to increase the dose of alumina, and then adjust the quantity of lime, or limestone, in the manner above-described.

It should be observed, that I have, in the foregoing calculations, presupposed that lime is the only flux employed, and that silica and alumina are the only earths which it may be necessary to remove in the smelting process; as I wish to make myself clearly understood, I beg to observe, that the principle to be continually kept in view by a furnace manager is this—namely, to use, as fluxes, such materials as may, at the current temperature of a blast-furnace, cause the earthy residue of his mines and fuel to run into a clear and colourless glass or cinder, without the aid of addition of protoxide of iron; his results will then be every thing he could possibly desire, and the working of his furnaces be placed under complete control.

In the above calculations I have refrained from taking magnesia into the account, for two reasons; first, because, in the general run of materials, particularly in this part of the United Kingdom, magnesia is seldom found in quantity sufficient to materially affect the blast-furnace process, unless "magnesia limestone" should be used, for, although many coal ashes, and some few iron ores, certainly contain portions of magnesia, it scarcely ever occurs to an extent amounting to 50 lbs. in the whole of the materials required to yield a ton of iron; and, therefore, secondly, I have neglected to take magnesia, and also the small quantities of lime and magnesia to be found in some mines (the calcareous iron mines of the Forest of Dean are, of course, excluded in these calculations), and likewise the oxygen, as being a volatile body, into the furnace mixture estimates, in order to avoid an unnecessary complication in the calculations. It is, nevertheless, desirable that an iron master should make himself acquainted with the effect of small doses of magnesia, in comparatively large mixtures of silica, lime, and alumina, at the temperature of a smelting-furnace, because, from the instability of magnesia, *per se*, at the temperatures alluded to, and its generally admitted property of rendering combustible materials infusible that otherwise may be readily melted, what may be thought a very small quantity of it, may produce exceedingly perplexing results in the process under consideration. Little danger need, however, be apprehended to arise from the amount of magnesia usually found in the mines and fuel of this neighbourhood; but, with regard to limestone, much caution will be required in their selection, for, should the magnesian stones be employed, either by neglect, or on the score of cheapness (a stumbling-block by which the proprietors of many iron works have, not only in calcareous limestone, but in keeping a regular and uniform supply of stone for their furnaces, have lost both their credit and their capital), the most disastrous consequences would be liable to follow—namely, the furnaces would be insufficiently put out of order by the instability of the earthy residues (similar in effect to that previously described as the consequence of an excess of silica). A large amount of coke, blast, lime, and other materials would be needlessly consumed—much damage could be done to the hearth and to the walls of the crucible and chimneys of the furnace; and the iron obtained at this time would be greatly reduced from the proper yield of the mine, and it would be of the most inferior description as to quality, which quality could never, by any afterwards, be improved. Too much caution, therefore, cannot be employed in the selection of limestone for application in the smelting process, until a discovery shall be made of the means of readily fusing, at the temperature of an iron furnace, and without the aid of protoxide of iron, earthly compounds in which magnesia may, in quantity or effect, be found to injuriously prevail.

## MINING CORRESPONDENCE.

## ENGLISH MINES.

## HOLBROOK MINING COMPANY.

May 9.—I beg leave to inform you that the 100 fathoms level is communicated from Forest's to Dingle's wings, and we have now set the level to drive west of the latter wing, by six men. The 100 fathoms level, both east and west of Wall's shaft, is without important alteration; the lode in the eastern stopes, in the back of this level, is twenty inches wide, and worth 34d. per fathom; the lode in the western stopes, in the back of ditto, is still about two feet wide, and worth 30d. per fathom. In the ninety fathoms level west the lode is eighteen inches wide, and worth 36d. per fathom; the lode in the eastern stopes, in the back of this level, is sixteen inches wide, and worth 25d. per fathom; the lode in the middle stopes, in the back of this level, is eighteen inches wide, and worth 28d. per fathom; in the western stopes, in the back of ditto, the lode has not been taken down. The lode in the eighty fathoms level, east of Wall's shaft, is ten inches wide, with stones of ore; the lode in the stopes, in the back of this level, is eighteen inches wide, and worth 30d. per fathom. The Flapjack lode, in the seventy fathoms level, west of Wall's shaft, is one foot wide, and intersected with ore. In the sixty-two fathoms level, east of Bray's shaft, the lode is six inches wide, and unproductive; in this level, west of Hitchins's shaft, the lode is fifteen inches wide, and worth about 10d. per fathom. The tribute pitches are without material alteration.

F. PHILLIPS.

## TRELEIGH CONSOLIDATED MINING COMPANY.

May 7.—Christon shaft has not been sinking this week, as we are putting it in order and repairing it. At the seventy east the lode is small, and disordered by a slide; the seventy west is two feet wide, producing good stones of ore, and very kindly. The sixty east is without alteration; the sixty west is three feet wide, of a kindly appearance, with stones of ore, but not yet clear of the cross-course. The fifty west is two feet wide, and worth 30d. per fathom. Good Fortune shaft we are also putting in order for beginning to sink. The forty-four west is two feet wide, with stones of ore; the forty-four east is one foot wide, and worth 8d. per fathom. The thirty-four east is two feet wide, and worth 6d. per fathom.

W. SYMONS.

## TRIGGIAN MINING COMPANY.

May 8.—The lode going east, at the forty fathoms level, is at present producing grey ore—worth 6d. per fathom; this level is extended sixty-five fathoms to the end of Baker's shaft, and about fifty-five fathoms of which are productive ground; the cross-cut going north, at this level, is extending thirty-eight fathoms from the main lode, and we supposed, from the distance that has been driven, that we must have passed through the first of the northern lode—if so, it has appeared as a branch, small and poor; we calculate cutting the second lode in this direction, which we consider to be the most kindly, in driving about three fathoms further. We expect to set the new machinery to work to-morrow, and to proceed with the sinking below the forty fathoms level. J. NINNIS.

## TREFOIL MINING COMPANY.

May 9.—The lode in the forty fathoms level, east of engine-shaft, is eighteen inches wide, producing some good ore; six fathoms driven last month—much the same. The lode in the wing, in the bottom of the thirty fathoms level, east of Williams's shaft, is twenty inches wide—very good tribute ground. The lode in the thirty fathoms level, east of Williams's shaft, is ten inches wide, and unproductive; about five fathoms driven last month—two fathoms good tribute ground. Our new shaft, which we commenced sinking on the 13th of last month, is holed twenty fathoms below the adit.

H. WILLIAMS. J. MORCOM.

## BEDFORD UNITED MINING COMPANY.

May 9.—I beg to hand you my report. At the Marquis lode appearances are still encouraging, although the exact size of the lode cannot be stated, not having been cut through from wall to wall; the grey part of the lode, however, laid open may be safely reported worth 12d. per fathom. The Marquis lode, in the thirty fathoms level, east of the engine-shaft, is about two feet wide, composed of fluor-spar, mica, and ore, worth, on an average, about 10d. per fathom. In the twenty-five fathoms level, west of the engine-shaft, on the Marquis lode, the amount of produce derivable therefrom may be estimated at 12d. per fathom, the size of the lode altogether being about two feet in width. The tribute pitches are, on the whole, looking favourable. J. H. HITCHINS.

## UNITED HILLS MINING COMPANY.

May 10.—Williams's Shaft—Lode three feet wide, producing some good ore. Sixty Fathoms Level, East End—Lode three and a half feet wide, two and a half feet very good ore; no alteration in the western end. Fifty Fathoms Level—In the stopes, back of this level, the lode is two feet wide, good ore. East of James's Shaft—Lode two and a half feet wide, eighteen inches good ore. West of Diagonal Shaft—Lode five feet wide, coarse in quality. Diagonal Shaft—Lode two feet wide, a little improved for ore since last week. Forty-six Fathoms Level, Eastern End—Lode two and a half feet wide, producing but little ore; no ground driven in the western end for the past week. Forty Fathoms Level—Lode two feet wide, producing good ore. Thirty Fathoms Level—Lode one foot wide, producing good ore. Twenty Fathoms Level—Lode three feet wide, producing some stones of ore. N. LANGDON.

## WEST WHEAL JEWEL MINING ASSOCIATION.

(A report from the mining captains (Stephen Lewis and Richard Johns) was presented to the meeting of proprietors, held at their offices, on Monday last (a notice of which will be found in another column), but being merely a confirmatory epistle of the various reports that have weekly appeared in our columns, its insertion is not requisite.)

## BEDMOOR CONSOLIDATED MINING COMPANY.

May 9.—In driving south on the lead lode, at the sixty fathoms level, we have now passed through the east and west lode alluded to in my report of the 20th ult., and find it to be about eighteen inches in width, composed of quartz, spar, a considerable portion of mica, and stones of tin and copper, underlying south about six feet in a fathom; the lead lode, in this end, is six or eight inches wide, producing good work, and of promising appearance; the north end, at this level, is suspended, and a tribute pitch set to these men in the back of this level. In the fifty fathoms level, going south the lode is one foot wide, producing a small portion of lead ore; in going north the lode is two feet wide, the upper lode to the east end, at this level, is still about eighteen inches wide, with quartz, spar, mica, and good stones of ore; in going west the lode is two inches wide, and much of the same nature as in the eastern end. In going south, at the forty fathoms level, the lode is from four to six inches in width, composed of white iron and lead ore. F. H. BROWN.

## CONSTITUTION MINING COMPANY.

May 7.—Yesterday we held our monthly setting for this month, for the particulars of which I beg to refer you to the setting report forwarded this day. The engine-shaft is now sunk below the sixty fathoms level 3 fms. 20 in. ground without alteration, rather a hard kilns. In the sixty fathoms level going west, Cheverton lode is very much improved, and, from present appearance, a good lode is near at hand; the leader in the end now is about four inches wide, and rich; the lode altogether is from two to three feet big, and of the most encouraging character; we have no doubt but what considerable returns will be long made out of this level. The shallow levels driving on the eastern part of this mine—viz., the eight, sixteen, and twenty-four—are unproductive, although the ground and lode appear singularly for lead. With respect to the other parts of the mine I see nothing new to report so different from what was noticed on the 8th ult. R. BROWN.

## MINING NOTICES.

[Under this head we propose collecting each paragraph or may appear in the provincial and other journals, bearing reference to discoveries and improvements in mining operations at home and abroad. It is highly necessary to observe, that we must not be considered to admit the correctness of the information contained, which, in too many instances, requires cautious investigation—the magazine of publications of mine in some instances, and the want of honesty in others, involving a degree of responsibility on a journal in giving publicity to reports, which we do not intend taking upon ourselves.]

GLENDARROCK IRON WORKS, KILDEWENT.—These works, which are in the course of erection near the site of the Glasgow and Ayr Railway, between Kildewent and Beith, have lately passed into the hands of Messrs. Allinson, Murray, and Cassell, the proprietors of Coalbrookdale Works, near to Coalbrookdale, who, we observe, have infused new energy into the operations. The stone used of the blast-furnaces, not a massive blast-rock is already selected, and workmen are busy completing the brick department. A steam-engine of 120-horse power is in progress, and a brick chimney stack for carrying off the smoke and fumes is in elevation of 100 feet. The pots for melting iron, steel, and brass, are in full operation, and several others in construction. All the bricks used in the buildings are manufactured on the premises, and the fire-clay is reported to be of superior quality. The number of workmen engaged in the different departments, by the company, is nearly 200. The size of the works has been considerably enlarged, and much skill and taste displayed in laying off the grounds and buildings. We understand the granite and mica-schist are held in lease from the Earl of Glencairn.—*Argus Advertiser.*

FALKLAND QUARRY, DUNFERMLINE.—The beautiful light red, fine texture, and almost uncoloured stone of the bluffs of granite that are being dislodged from this quarry, are causing this stone to be more and more generally preferred to even the best Aberdeenshire granite. It is extremely durable, and we find that the quarry is worked with great difficulty, notwithstanding masses of from thirty or forty tons are continually being conveyed

to London and to the provinces by means of the railways, canals, &c. Chatsworth's bronze statue of George IV., at Edinburgh, and his statue of Watt, at Glasgow, stand on blocks of Falkland granite.—*W. of England Conservative.*

## MINE ACCIDENTS.

EARL WHEEL CRAFTY.—A man named Hosking had one of his legs broken in several places on Saturday week, by the ground failing in around him.—On the same day, a lad named Corrier was seriously injured by an accident in the same mine.

STAGGY'S-HORN MILL, STOCKTON.—Yesterday week, as some men were engaged in raising a large pan, or kettle, the chain with which it was suspended broke, and one of the men (J. Wardell) was severely crushed, but is now in a fair way of recovery.

Duke of Buccleuch's Quarry, Melrose.—A few days since a young man who was engaged in this quarry was killed by a large piece of rock falling on his head.

STODRIG QUARRY, KELVIN.—On Friday week, as A. Main was engaged in perforating the rock for the purpose of blowing it up with gun

